

**INITIAL STUDY / ENVIRONMENTAL ASSESSMENT
FOR THE
CITY OF SAN BERNARDINO
MUNICIPAL WATER DEPARTMENT'S
PALM #3 RESERVOIR PROJECT**

Project Proponent and CEQA Lead Agency:

**City of San Bernardino
Municipal Water Department**

300 North "D" Street
San Bernardino, California 92418

NEPA Lead Agency:

**U.S. Environmental Protection Agency
Region 9**

75 Hawthorne Street
San Francisco, California 94105

Preparer:

Tom Dodson & Associates

2150 North Arrowhead Avenue
San Bernardino, California 92405

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Chapter 1 PURPOSE AND NEED

1.1 INTRODUCTION

The project generally consists of constructing a 4 million gallon (MG) water storage reservoir on the existing City of San Bernardino Municipal Water Department's (CSBMWD) 4.29-acre Palm Reservoir site. The site contains an existing 5 MG and a 325,000 gallon above groundwater storage reservoirs, a water pumping station, hydro-generation station which produces electricity from the energy in water delivered to the site from higher elevations, and various other water supply equipment (pipes, valves, etc.). The Palm Reservoir water system provides water to the CSBMWD's College-Palm pressure zone. Presently, the College-Palm pressure zone has about a 3.2 MG deficiency in emergency and fire flow water storage capacity to comply with health and safety recommendations for this system. This deficiency results in the need for CSBMWD to operate its pumps and motors during peak electricity usage periods to maintain an adequate supply of water to the system and its customers. This project is being proposed by CSBMWD to correct that deficiency and provide more reliable, efficient and cost effective water system that is consistent with industry standards for water storage capacity.

The CSBMWD is a subsidiary department of the City of San Bernardino, San Bernardino County, California. The CSBMWD is governed by a Board of Water Commissioners which is a separate governing body from the City Council of the City of San Bernardino. It is proposed that the U.S. Environmental Protection Agency (EPA) will provide funding for the project through a federal grant.

1.2 REGULATORY REQUIREMENTS OF NEPA

The National Environmental Policy Act (NEPA) of 1969 requires federal agencies to take into consideration the potential environmental consequences of proposed actions in their decision-making process. The intent of NEPA is to protect, restore, or enhance the environment through well informed federal decisions. The Council on Environmental Quality (CEQ) was established under NEPA to implement and oversee federal policy in this process. The CEQ subsequently issued the *Regulations for Implementing the Procedural provisions of the NEPA* (40 CFR §1500-1508) in 1978.

These regulations specify that an Environmental Assessment (EA) be prepared to:

- briefly provide sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI);
- aid in an agency's compliance with NEPA when no EIS is necessary; and
- facilitate preparation of an EIS when one is necessary.

Further, besides NEPA, other pertinent federal environmental requirements have been established, including those under the Endangered Species Act and the National Historic Preservation Act.

1.3 PURPOSES OF THIS ENVIRONMENTAL REVIEW

Because the EPA is providing funds to construct this project, compliance with the NEPA must be demonstrated. In addition, compliance with the California Environmental Quality Act (CEQA) is necessary, with the CSBMWD serving as the primary agency implementing the project (lead agency) under CEQA. Therefore, this environmental document is being prepared as a joint NEPA/CEQA environmental document, termed an Initial Study (IS)/Environmental Assessment

(EA). The document will be processed and distributed separately by each lead agency. This document will provide the necessary information to determine if further environmental analyses are needed.

Once this IS/EA review process is completed, the EPA will either issue a Finding of No Significant Impact (FONSI) or decide to prepare an Environmental Impact Statement (EIS) under NEPA. The CSBMWD will either issue a Negative Declaration or determine the need for an Environmental Impact Report (EIR) under CEQA. Should further documentation be required, it is likely that it would be in the form of a joint CEQA/NEPA document, termed an EIS/EIR. Only after the above procedures are completed can the proposed project be approved and funded with subsequent finalization of site and engineering plans and construction of the project.

1.4 PROJECT PURPOSE AND NEED

The CSBMWD is a subsidiary department of the City of San Bernardino that is governed by a Board of Water Commissioners that is separate from the City Council of the City of San Bernardino. The CSBMWD presently serves a population of about 200,000 and has an overall system water storage capacity of about 100 MG. As with most areas in the region, the CSBMWD service area has experienced substantial population growth in recent years. This includes the College-Palm Pressure Zone which is provided water service from the Palm Reservoir site. This growth has resulted in a 3.2 MG water storage capacity deficiency in the College-Palm Pressure Zone to meet health and safety requirements for emergency and fire flow water storage capacity.

The purpose of the proposed project is to correct the current water storage deficiency in the CSBMWD's College-Palm Pressure Zone. The proposed 4 MG water storage reservoir will correct this condition and provide the storage capacity needed to meet health and safety standards for emergency and fire flow water storage capacity. Without adequate storage capacity, CSBMWD must operate pumps and motors during peak electricity usage periods in an attempt to maintain an adequate supply of water to the system. This is not only inefficient and costly, but is a health and safety issue in that it makes the water system more reliant on electricity to meet potential emergency and fire flow water supply demands.

This project does not propose the extraction of additional groundwater, only alter the times at which groundwater is pumped.

Chapter 2 PROPOSED ACTION, INCLUDING ALTERNATIVES

2.1 PROPOSED ACTION

As previously described, the project generally consists of the construction and operation of a 4 MG capacity water storage reservoir on a site presently dedicated to water facilities. This IS/EA evaluates the potential effects on the environment that will occur from construction and operations activities associated with this new reservoir.

2.1.1 Location

The project site is located in the northwesterly portion of the City of San Bernardino in an area known as Verdemont. The area is within the area of the Mexican Land Grant boundary of Rancho Muscupiabe. As such, it was not part of the United States Government Land Survey and is not sectionalized. The site is located southerly of the 215 Freeway and Kendall Drive; northerly of Cajon Boulevard and the BNSF Railroad right-of-way; and about 800 feet northwesterly of Palm Avenue. The site is accessed from Palm Avenue along Palm Reservoir Plant Road.

This site is owned by the CSBMWD and is called the Palm Reservoir Site. It is located at an elevation of about 1,700 feet above mean sea level and is shown on USGS – San Bernardino North Quadrangle, 7.5-Minute Series topographic map. Refer to regional and project vicinity maps in Figures 1 and 2.

2.1.2 Environmental Setting

The Department service area coincides generally with the corporate limits of the City of San Bernardino. The terrain generally slopes downward at about 2 percent from north to south. The San Bernardino Valley area climate is considered Mediterranean, with an average annual maximum temperature of about 80°F degrees (Fahrenheit) and an average minimum temperature of about 50°F. Typically, day time temperatures range from the 90's to low 100's in the summer to the 50's and 60's in the winter months. Night-time temperatures in the project area occasionally drop below freezing in the winter. The rainy season generally begins in November and continues through March, with the quantity and frequency of rain varying from year to year. The average annual rainfall is approximately 15 inches.

The project area consists of a mixed urban, suburban, and rural community. The land uses are a combination of residential, commercial/industrial located several hundred feet northeasterly of the site along the 215 Freeway corridor and primarily open space and some government uses about one mile to the southwest. A major railway corridor, the Burlington Northern Santa Fe (BNSF) and Union Pacific (UP) railroad tracks are located between about 1,000 - 2,000 southwesterly of the site. The open space area is associated with the Cajon Creek Wash which is located about one mile southwesterly of the project site.

The project site and adjacent land is regularly mowed or plowed as part of weed abatement programs. No substantial amount of native habitat or vegetation exists on or near the project site. Some isolated stands of native plants occur on and adjacent to the project site. Figures 3 and 4 contain photographs of the site and adjacent area.

2.1.3 Project Characteristics

The Palm Reservoir site occupies about 4.29 acres. The site is fenced and gated and contains an existing 5 MG and 325, 000 gallon above ground steel water storage reservoirs; an existing water pumping station; a hydro-generation facility; and other water supply related equipment. The proposed 4 MG reservoir will be placed in an open area northerly of the existing reservoirs and westerly of the pumping station and hydro-generation facility. See Figures 3 and 4, Site Photographs and Figure 5, Site Plan.

Construction of the new reservoir will require preparation of a new pad (clearing, excavation, and compaction, etc.) on about one-half acre of the site. Site preparation will take approximately 10 days. Due to the small size of the site, it is anticipated that one dozer, a front loader and a water truck will be required. Reservoir materials and equipment delivery will require an average of about 10 truck trips daily averaging about 30-mile round trips with trucks. A minimal amount of new pipe will be installed to connect the new reservoir to the existing water delivery system.

Construction at the site is anticipated to involve up to about 15 workers on a given day. It is anticipated that workers will likely come from the local work forces and travel to the site in private vehicles. This is estimated to involve about 20 miles for vehicle round trips daily for each worker. After construction, the exterior of the reservoirs will be coated with a primer and enamel coatings to prevent corrosion and for aesthetic purposes. The current reservoir on the site is light grayish-white.

2.2 ALTERNATIVES

2.2.1 No Action Alternative

The No Action alternative would be the continued operation of the site as a water supply facility. The site would remain in its current disturbed condition and operations would remain as they are presently. The CSBMWD would continue to operate the existing water supply facilities and maintain the site through its weed control/abatement program. The CSBMWD's College-Palm Pressure Zone would continue to be substantially deficient in its health and safety requirements for emergency and fire flow water storage capacity. This deficiency would increase as the demand for water increases in the service area, thus perpetuating and exacerbating the current unsafe condition.

Thus, the implementation of the no action alternative would not meet the immediate demand of the CSBMWD customers. Public health, safety and welfare concerns would continue to be affected if this new reservoir is not constructed and operated.

2.2.2 Alternative Sites

The purpose in examining alternatives to a project is to determine whether there are alternatives that can reduce the impacts that will be caused by implementing the preferred project. This proposed reservoir is being implemented to correct the existing water storage deficiency in the College-Palm Pressure Zone. That limits the feasible sites available to sites that are owned by the CSBMWD that are at an appropriate elevation to serve that pressure zone. Sites at a lower elevation would require extensive use of electricity to pump water "uphill" to a storage facility which is essentially the present condition. A reservoir at a higher elevation would require some method

of reducing the water pressure to serve the College-Palm Pressure Zone. The use of additional pumping to get water to the higher pressure zone would not meet one of the primary objectives of the project which is to reduce the use of electricity to supply the current demand in the College-Palm Pressure Zone. The College-Palm Pressure Zone is located in one of the Department's higher pressure zones which has limited water supply facilities (wells). The primary sources of water in the Bunker Hill Groundwater Basin is from wells located at lower elevations where the aquifer is deeper and contains better water producing soils (sands, gravels, etc.). Therefore, placing a reservoir at a higher elevation would require additional pumping and electricity usage to provide the required storage capacity.

The only CSBMWD property that is located at an appropriate elevation is in the Devil Canyon area. This site is not developed and is located nearer the San Andreas Fault and presents several constraints and the potential for greater impacts to the environment than use of the existing Palm Reservoir site. The Devil Canyon site contains native habitat that would require removal. That site would require extensive grading to create a buildable site. The site contains an existing 48-inch water transmission pipeline operated by the San Bernardino Valley Municipal Water District (SBVMWD) that could adversely affect a reservoir at that site in case of pipe rupture or substantial maintenance and repair of the pipeline. The Devil Canyon site is more remote which presents some security constraints. The Devil Canyon site does not contain sufficient existing utilities or security or communications equipment which must be extended to the site if the proposed reservoir were placed on that site.

The proposed site contains existing infrastructure (pipes, valves, etc.) which were placed on the site when developed in anticipation of additional water storage facilities at the site. The Palm Reservoir site contains an existing hydro-generation facility that allows the CSBMWD to utilize energy from water delivered from higher elevations to the Palm Reservoir site to generate electricity which is used to operate the existing booster pump station at the site.

The proposed project site was developed with the intent of placing additional water storage capacity at the site. No other site is available to the CSBMWD that can feasibly meet the goals and objectives of this project while minimizing peak hour electricity usage and environmental and economic impacts of construction and operation of the needed water storage capacity.

Chapter 3 AFFECTED ENVIRONMENT

The following discussion of the affected environment generally addresses the 18 environmental issues that will be further analyzed under Environmental Consequences. By presenting environmental information in this format, it will be possible for the environmental review to more easily serve both CEQA and NEPA environmental documentation requirements. The affected environment issues are addressed in the following order, which includes NEPA topics and also includes the CEQA Initial Study Environmental Checklist format: air quality, water quality, utilities/services, land use, transportation, natural environment, human population, construction, energy impacts, coastal zone management act, cultural resources, wild and scenic rivers, endangered species, floodplain management and protection of wetlands, farmland protection, and coastal barrier resources. To the extent that the above natural resources or man-made systems occur or are in demand at the site, the following discussion summarizes the existing environmental condition or circumstances.

3.1 AIR QUALITY

3.1.1 Environmental Setting

The City of San Bernardino is located within the South Coast Air Basin (SoCAB). The South Coast Air Quality Management District (SCAQMD or District) and Southern California Association of Governments (SCAG) are the regional agencies with responsibility for management air quality in the SoCAB. The air quality regulatory jurisdictions within the project area include the U.S. Environmental Protection Agency (EPA), the California EPA, and the SCAQMD.

Climate in the project area is characterized by warm, dry summers, low precipitation, and mild winters. Average daily maximum winter temperature is 70°F and average daily maximum summer temperature is 94°F. During the year, temperatures usually range from a low near 40°F during the winter to a high of over 100°F during the summer. More than three-quarters of annual rainfall occurs from December through March. Little rain falls between May and November, due to the semi-permanent Pacific high pressure system that prevents storms from entering the area.

The SoCAB experiences a persistent temperature inversion (increasing temperature with increasing altitude) as a result of the Pacific high. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer. This phenomenon is observed in mid-afternoon to late afternoon on hot summer days, when the smog appears to clear up suddenly. Winter inversions frequently break by mid-morning.

The SCAQMD maintains 33 monitoring stations throughout the SoCAB to monitor concentrations of criteria pollutants in the air. The nearest SCAQMD monitoring stations to the project area that measure criteria pollutants are the Central San Bernardino Valley 1 (Station No.34) and the Central San Bernardino Valley 2 (also Station No. 34) stations. Pertinent air quality standards for the region are listed on Table 3.1-1 and health related pollutants are described on Table 3.1-2. The air quality monitoring data from the Valley 1 and Valley 2 stations for the last year that full year monitoring data from the SCAQMD monitoring stations is available are provided on Table 3.1-3.

**Table 3.1-1
STATE OF CALIFORNIA AIR RESOURCES BOARD AMBIENT AIR QUALITY STANDARDS**

Pollutant	Average Time	California Standards ¹		National Standards ²		
		Concentration ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷
Ozone (O ₃)	1 Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	–	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m ³)		0.08 ppm (157 µg/m ³)		
Respirable Particulate Matter (PM10)	24 Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m ³		–		
Fine Particulate Matter (PM2.5)	24 Hour	No Separate State Standard		35 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	15 µg/m ³		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m ³)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m ³)	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m ³)		35 ppm (40 mg/m ³)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m ³)		–	–	–
Nitrogen Dioxide (NO ₂) *	Annual Arithmetic Mean	0.030 ppm (56 µg/m ³)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m ³)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.18 ppm (338 µg/m ³)		–		
Sulfur Dioxide (SO ₂)	Annual Arithmetic Mean	–	Ultraviolet Fluorescence	0.030 ppm (80 µg/m ³)	–	Spectrophotometry (Paraosanine Method)
	24 Hour	0.04 ppm (105 µg/m ³)		0.14 ppm (365 µg/m ³)	–	
	3 Hour	–		–	0.5 ppm (1300 µg/m ³)	
	1 Hour	0.25 ppm (655 µg/m ³)		–	–	–
Lead ⁸	30-Day Average	1.5 µg/m ³		–	–	–
	Calendar Quarter	–		1.5 µg/m ³	Same as Primary Standard	High Volume Sampler and Atomic Absorption

Pollutant	Average Time	California Standards ¹		National Standards ²		
		Concentration ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer – visibility of 10 miles or more (0.07 - 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates	24 Hour	25 µg/m ³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence			
Vinyl Chloride ⁸	24 Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography			

Note: * On February 19, 2008, the Office of Administrative Law approved a new Nitrogen Dioxide ambient air quality standard, which lowers the 1-hour standard to 0.18 ppm and establish a new annual standard of 0.030 ppm. These changes will become effective March 20, 2008.

Footnotes

- 1 California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter – PM10, PM2.5, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
- 2 National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.
- 3 Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
- 4 Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
- 5 National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
- 6 National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
- 7 Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.
- 8 The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Source: California Air Resources Board (02/21/08)

Table 3.1-2
HEALTH EFFECTS SUMMARY FOR AIR POLLUTANTS

Pollutants	Sources	Primary Effects
Ozone	Atmospheric reaction of organic gases with nitrogen oxides in sunlight.	Aggravation of respiratory and cardiovascular diseases. Irritation of eyes. Impairment of cardiopulmonary function. Plant leaf injury.
Nitrogen Dioxide	Motor vehicle exhaust. High temperature. Stationary combustion. Atmospheric reactions.	Aggravation of respiratory illness. Reduced visibility. Reduced plant growth. Formation of acid rain.
Carbon Monoxide	Incomplete combustion of fuels and other carbon-containing substances, such as motor vehicle exhaust. Natural events, such as decomposition of organic matter.	Reduced tolerance for exercise. Impairment of mental function. Impairment of fetal development. Death at high levels of exposure. Aggravation of some heart disease (angina).
Particulate Matter	Stationary combustion of solid fuels. Construction activities. Industrial processes. Atmospheric chemical reactions.	Reduced lung function. Aggravation of the effects of gaseous pollutants. Aggravation of respiratory and cardiorespiratory diseases. Increased cough and chest discomfort. Soiling. Reduced visibility.
Sulfur Dioxide	Combustion of sulfur-containing fossil fuels. Smelting of sulfur-bearing metal ores. Industrial processes.	Aggravation of respiratory diseases (asthma, emphysema). Reduced lung function. Irritation of eyes. Reduced visibility. Plant injury. Deterioration of metals, textiles, leather, finishes, coating, etc.
Lead	Contaminated soil.	Impairment of blood function and nerve conduction. Behavioral and hearing problems in children.

Source: SCAQMD 1993

Table 3.1-3
AIR QUALITY DATA FOR MONITORING STATIONS
Maximum Background Concentration For Each Pollutant (2004 through 2006)

Pollutant	Units	1-Hour Max	8-Hour Max	24-Hour Max	Average Annual	Monitoring Station
Carbon Monoxide	ppm	4 (2004)	3.3 (2004)	-	-	Central San Bernardino Valley 2
Oxides of Nitrogen	ppm	0.12 (2004)	-	-	0.0310 (2005)	Central San Bernardino Valley 2
						Central San Bernardino Valley 1
Oxides of Sulfur	ppm	0.01 (2004 - 2006)	-	0.006 (2004)	0.0019* (2006)	Central San Bernardino Valley 1
PM ₁₀	µg/m ³	-	-	142 (2006)	53.5 (2006)	Central San Bernardino Valley 2
PM _{2.5}	µg/m ³	-	-	106.3 (2005)	22.0 (2004)	Central San Bernardino Valley 2
Ozone	ppm	0.163 (2005)	0.130 (2004)	-	-	Central San Bernardino Valley 2
Lead	µg/m ³	Max Monthly Average 0.02	Max Quarterly Average 0.02	-	-	Central San Bernardino Valley 2
Sulfate	µg/m ³	-	-	11	-	Central San Bernardino Valley 2

Note: * Only year data available.

Source: South Coast Air Quality Management District, *Air Quality Monitoring Data*.

3.1.2 Air Quality Regulations

Ambient Air Quality Standards

Ambient air quality standards (AAQS) are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and safety. They are designed to protect those people most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and people engaged in strenuous work or exercise, called "sensitive receptors." Healthy adults can tolerate exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed. Recent research suggests, however, that long-term exposure to air pollution at levels that just meet air quality standards may nevertheless have adverse health effects.

The federal Clean Air Act (CAA), the California Clean Air Act (CCAA), and the Air Quality Management Plan (AQMP) prepared and adopted by the SCAQMD regulate air quality in the air basin. The following discussion describes the regulatory authority of the federal, state and local jurisdictions.

Federal Clean Air Act

The Federal CAA Amendments of 1990, signed into law by the President on November 15, 1990, contains important provisions that significantly changed how air quality is regulated in the United States, although California's regulations are more stringent than federal regulations. Federal ambient air quality standards are summarized in Table 3.1-1. The amendments of the 1990 federal CAA are associated with the attainment and maintenance of air quality standards, permits and enforcement, toxic air pollutants, acid deposition, stratospheric ozone protection and motor vehicles and fuels.

The goal of Title I, the non-attainment provision, is to attain air quality standards for six criteria pollutants: ozone, oxides of nitrogen, oxides of sulfur, particulate matter (PM₁₀), carbon monoxide, and lead. All non-attainment areas are designated or classified based on the severity of their non-attainment problem. These classifications determine the extent to which remedial actions must be taken within a given planning area. Portions of the South Coast Air Basin (SoCAB) are designated non-attainment by federal and state standards for ozone and particulate matter (PM_{2.5} and PM₁₀).

40 CFR (Code of Federal Regulations) Part 93 section 153 provides emission thresholds for criteria pollutants to determine if a project's emissions are considered *DeMinimis* and exempt from preparation of an Air Quality Conformity Analysis and Determination. The purpose of the General Conformity Rule is to demonstrate that a Federal agency action will conform to the appropriate state implementation plan (SIP) to meet air quality standards.

California Clean Air Act

The CCAA, passed by the California Legislature and signed into law by the Governor in 1988, is a comprehensive air pollution control agenda for the state of California. State standards are, in most cases, more stringent than federal standards. The goal of the Act is to attain state air quality standards by the earliest practical date. Moderate areas were expected to attain standards by 1994, serious areas by 1997, and severe areas are expected to achieve standards after 2007.

The CCAA of 1990 recognized that previous projections were exceedingly optimistic and that violations of air quality standards in areas of severely degraded air quality may persist for another 20 years. Because California established AAQS several years before the federal action and because of unique air quality problems introduced by the restrictive dispersion meteorology, there is a considerable difference between state and national clean air standards. Those standards currently in effect in California are shown on Table 3.1-1.

The CCAA requires each air pollution control district designated as in non-attainment of state ambient air quality standards for ozone, carbon monoxide, sulfur dioxide, or nitrogen dioxide to prepare and submit a plan for attaining and maintaining state standards. PM₁₀ is not included in this list to prepare a plan, although non-attainment of this pollutant occurs statewide. The California Air Resource Board (CARB) must prepare a study of PM₁₀ and include methodologies proposed to reach attainment.

After further review of the relationship between fine particulate matter and human health effects, the California Air Resources Board (CARB) adopted new state standards for PM_{2.5} that are much more stringent than the federal standards. These standards were adopted June 20, 2002. No specific control programs are in place to achieve this much more stringent standard. It does

represent, however, an air quality goal to dramatically reduce the adverse health effects from small-particle air pollution. Health effects from air pollutants are summarized in Table 3.1-2.

Each attainment plan must contain the present and anticipated extent of non-attainment including adopted and proposed measures to reduce emissions of the pollutant and/or its precursors, and their anticipated effectiveness; the availability and effectiveness of additional control measures; the earliest practicable attainment date; any legal, technological, or administrative impediment to developing and implementing an attainment plan; the relative significance of both natural and windblown emissions; and any additional information needed with respect to ambient air monitoring and air quality computer modeling, and estimated budgetary requirements to obtain the information.

Some of the CCAA requirements include reducing pollutants contributing to non-attainment by 5 percent per year, or 15 percent over a 3-year period, achieving an average commuter ridership of 1.3 persons per vehicle, reducing non-attainment pollutant exposures by 30 percent, and ranking control measures by implementation priorities.

There are no AAQS for non-criteria pollutants (such as diesel exhaust—the ARB identified diesel exhaust as a toxic air contaminant in 1998). Therefore, other guidelines are used to evaluate the potential air quality impact of diesel exhaust. For non-cancer effects, the California AB 2588 Air Toxics Hot Spots program criteria identifies a hazard index. The hazard index (HI) is the ratio of a modeled concentration to a concentration (termed the reference exposure level) determined by the State of California Office of Environmental Health Hazard Assessment (OEHHA) below which no adverse health effects are expected to occur. This reference concentration for diesel exhaust is 5 ug/m³. If the hazard index is less than 1.0, then health effects are not expected. For cancer effects, Proposition 65 established the criteria of no significant risk level of 10 incremental cancers per one million exposed persons (10 x 10⁻⁶).

As part of a consent decree in 2002, the federal EPA initiated further review of airborne particulate matter and human health. A substantial modification of federal clean air standards was established in 2006. Standards for PM_{2.5} were strengthened, a new class of particulate matter in the 2.5 to 10 micron size was created, some PM₁₀ standards were revoked, and a distinction between rural and urban air quality was adopted. Of the standards shown on Table 3.1-1, those for ozone and particulate matter (PM₁₀) are exceeded at times in the SoCAB.

The 2007 Air Quality Management Plan was adopted by SCAQMD on June 1, 2007 after extensive public review. This document recognizes the interaction between photochemical processes that create both ozone and the smallest airborne particulates. The 2007 AQMP is therefore a coordinated plan for both pollutants. Key emissions reductions strategies in the updated AQMP include:

- Ultra-low emissions standards for both new and existing sources, including on- and off-road heavy trucks, industrial equipment, locomotives, ships and aircraft.
- Accelerated fleet turnover to achieve benefits of cleaner engines.
- Reformulation of consumer products to remove pollutants.
- Modernization and technology advancements from stationary sources (refineries, power plants, etc.).

Air Toxics

Toxic air contaminants (TACs) are airborne substances that are capable of causing short-term or long-term adverse human health effects. TACs include both organic and inorganic chemical substances. TACs may be emitted from a variety of common sources, including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. Research and teaching facilities where a variety of chemicals are used for various experiments may also be a source of TACs.

The 1990 federal CAA Amendments expanded the regulation of hazardous air pollutants (HAPs; the federal government terminology for TACs), establishing a list of 172 individual compounds and 17 compound categories to be regulated as HAPs. The federal CAA required the EPA (Environmental Protection Agency) to establish a stringent, technology-based emissions standard for stationary sources of emissions of these listed substances. The Federal CAA Amendments also required the EPA to list "major" and "area" source categories that the EPA finds sufficiently threatening to human health or the environment by November 1993, to establish emissions standards for at least 40 stationary source categories by November 1994, and to establish standards for all regulated sources by November 2002.

"Major sources" are defined as any stationary source that emits at least ten tons per year of any HAP or 25 tons per year of any combination of HAPs. "Area sources" are stationary sources encompassing small diverse facilities that routinely release small amounts of HAPs. By November 1997, the EPA must list sufficient categories and subcategories of area sources to ensure that 90 percent of the emissions of the 30 HAPs presenting the greatest threat to the public health in the largest number of urban areas are subject to regulation.

In the state of California, the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB2588) requires specified facilities to submit to the local air pollution control agency, in this case, the SCAQMD, a comprehensive plan to inventory air toxics emissions for all substances listed pursuant to the Act. After the inventory preparation plan is approved, the facility must implement the plan and submit the resulting air toxics emission inventory to the District. After the District receives the completed emission inventories subject to the Act, it is then required to identify high priority facilities for which health risk assessments must be prepared to estimate the potential health risk associated with TAC emissions.

Assembly Bill 1807 (Tanner Bill) set up a statewide process to determine the need for methods to set standards for toxic air contaminants. The process includes identification of toxic air contaminants, determination of emissions and ambient levels of the identified compounds, preparation of regulatory needs documents, and establishment of minimum statewide emission control standards by the CARB.

The CARB has identified several chemicals as TACs under the Tanner Bill, including asbestos, benzene, cadmium, carbon tetrachloride, chlorinated dioxins and dibenzofurans (15 species), chromium (VI), ethylene dibromide, ethylene dichloride, ethylene oxide and methylene chloride as toxic air contaminants. The CARB has not developed statewide standards for any of these chemicals.

The SCAQMD conducted the Multiple Air Toxics Exposure Study (MATES-III) for the SoCAB from April 2004 to March 2006. The study included air monitoring of toxic contaminants from ten fixed

sites. Addition, the study utilized mobile platforms to monitor five additional communities. One of the communities monitored using the mobile platform was San Bernardino. According to a fact sheet issued by the Department in January 2008, the cancer risk in the San Bernardino area ranged from 600 to 1,000 in one million.

Air Quality Planning

The California Air Resources Board (CARB) coordinates and oversees both State and federal air pollution control programs in California. The CARB has divided the State into 15 air basins. Significant authority for air quality control within them has been given to local Air Pollution Control Districts (APCD) or Air Quality Management District (AQMD), that regulate stationary source emissions and develop local non-attainment plans. The SCAQMD has jurisdiction over the air basin in which the proposed project is located and is responsible for regulatory stationary source emissions, and has been given the authority to regulate mobile emissions as an indirect source.

The SCAQMD includes the South Coast Air Basin and the Salton Sea Air Basin. The South Coast Air Basin (SoCAB) includes Orange County, and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The SoCAB has an area of 6,800 sq. miles and a 2005 population of 16 million people.

Air Quality Planning Conformity

The issue of air quality conformity or consistency with the regional air quality planning process is determined by comparing the proposed project with the regional growth forecasts. The SCAQMD has determined that the SoCAB can meet federal ambient air quality standards by 2015 for particulate matter and 2024 for Ozone if all the measures identified in the Air Quality Management Plan (AQMP) are implemented and growth is as anticipated.

The AQMP assumes that if future growth is consistent with the *Regional Comprehensive Plan and Guide* (Southern California Association of Governments, 1996 with 2004 update), the measures in the AQMP will be sufficient to reduce emissions in the air basin so that federal standards would not be violated. However, there still may be violations of the State standards for ozone in the year 2015. This project is consistent with the RCPG based on the project analysis in the Land Use Subchapter of this document.

The maximum ambient pollutant concentration over the most recent three year period is generally the baseline value against which an air quality impact is compared (Chapter eight of *The 1993 CEQA Air Quality Handbook* [SCAQMD] and *Scope and Content of Air Quality Sections in Environmental Documents* [Santa Barbara County Air Pollution Control District, 2005]). The maximum background concentration for each pollutant is listed in Table 3.1-3.

The nearest SCAQMD monitoring stations to the project area that measure criteria pollutants are the Central San Bernardino Valley 1 (Station No.34) and the Central San Bernardino Valley 2 (also Station No.34) stations.

In the more heavily populated areas of southern California, violations of particulate standards in the project area have been linked to the particulate matter from vehicle exhaust and industry and are considered to be unhealthful. Substantial portions of the SoCAB are designated as a federal non-attainment airshed for particulates.

While pollutants such as ozone and, particulate matter do on occasion exceed standards, pollutants such as carbon monoxide (CO), nitrogen oxides (NOx), sulfur dioxide, sulfate, and lead do not exceed allowable levels and the SoCAB is in attainment for these criteria pollutants.

A new issue, the effects of which on CEQA evaluations are not clear at this time, is that dealing with greenhouse gas emissions and their potential effects on climate change. Assembly Bill 32 (AB 32) adopted by the state legislature requires the Air Resources Board to adopt regulations limiting global warming emissions statewide. AB 32 requires that a statewide cap on CO₂ be adopted, but to date, the state has not provided regulatory guidance on what constitutes a significant source of greenhouse gas (GHG) emissions. Similarly, CEQA provides no new guidance on significance criteria other than the existing SCAQMD daily emission thresholds of significance. Therefore, it is not possible to make a definitive determination on the significance of a projects' GHG emissions.

3.2 HYDROLOGY AND WATER QUALITY

3.2.1 Surface Water

The topography of the project area slopes downward from northwest to southeast toward the Santa Ana River channel. The terrain of the project site is relatively flat with average slope of about 2 percent downward to the southwest. The project site has been graded and developed with water supply facilities. Drainage generally occurs as sheet flow which is intercepted by existing offsite roads and drainage facilities. No evidence of water erosion was observed on the site during the site evaluation.

The California Regional Water Quality Control Board, Santa Ana Region identifies the project site as being within Reach 5 of the Santa Ana River Basin. Reach 5 is the portion of the river between the San Jacinto Fault and the Seven Oaks Dam. The project site is located upgradient of the San Jacinto Fault and therefore considered to be within Reach 5. However, water discharged from the site flows southeasterly as sheet flow until intercepted by roads and other drainage features for discharge to Cajon Creek. Cajon Creek discharges to Lytle Creek which flows into the Santa Ana River downgradient of the San Jacinto Fault. The confluence of Lytle Creek and the Santa Ana River is located within Reach 4 of Santa Ana River. The Water Quality Control Plan for the Santa Ana River Basin identifies "beneficial uses" for specific segments or reaches of the Santa Ana River. The beneficial uses identified for Reach 5 are MUN (Municipal Water Supply), AGR (Agricultural Water Supply), GWR (Groundwater Recharge), REC-1 (Water Contact Recreation), REC-2 (Non-Contact Water Recreation), WARM (Warmwater Aquatic Habitat), WILD (Wildlife Habitat), and RARE (Threatened or Endangered Species), as well as associated water quality objectives which are designed to protect the uses. The beneficial uses within Reach 4 are MUN plus which indicates the waterbody has been specifically excepted from the MUN designation in accordance with the criteria specified in the "Sources of Drinking Water Policy" of the Basin Plan. Other beneficial uses in Reach 4 are the same as Reach 5 except that Reach 4 does not include AGR and RARE uses designations. As stated, there are no identified surface waters receiving direct drainage from the project site; flow occurs only in storm events and travels to the southeast towards Cajon Creek which discharges to Lytle creek and ultimately the Santa Ana River, which is about 10 miles to the southeast. The nearest downstream "receiving water" with specific water quality objectives is the Santa Ana River near the San Jacinto Fault in Reach 4 (a distance of about 10 miles). The water quality objectives in Reach 4 are: TDS 550 mg/l, TIN 10 mg/l and COD 30 mg/l. The water quality objectives for Reach 5 are: TDS 300 mg/L; Hardness 190 mg/L; Na 30 mg/L; Cl 20 mg/L; TIN 5 mg/L; SO₄ 60 mg/L and COD 24 mg/L.

3.2.2 Groundwater

The CSBMWD extracts groundwater from the Bunker Hill Groundwater Basin (Basin). Water extraction rights to the Basin have been adjudicated through a court issued Stipulated Judgment. The adjudication established a watermaster for the Bunker Hill Basin and the agencies involved in the agreement formed the Santa Ana Watershed Project Authority (SAWPA) to construct projects that serve to protect or enhance water quality in the Santa Ana River Basin. Under the Stipulated Judgment, a minimum average annual flow of water that meets water quality standards is guaranteed downstream of the Bunker Hill Basin. The water required to satisfy the Stipulated Judgment can be made up of recycled water, imported water, dry weather runoff or some combination of these sources. The San Bernardino Valley Municipal Water District (SBVMWD or Muni), is the State Water Project (SWP) water contractor for the Bunker Hill Basin area. Muni utilizes SWP water to replenish water extracted from the Bunker Hill Basin to meet the requirements for discharge downstream in compliance with the Stipulated Judgment.

This project does not propose any new groundwater extraction activities. It will only adjust the times at which groundwater pumping will occur. This project will provide adequate water storage in the College-Palm Pressure Zone to comply with health and safety requirements for emergency and fire flow water storage capacity and allow the CSBMWD to pump water during off-peak electricity usage periods.

3.2.3 Water Quality

The U.S. Environmental Protection Agency (EPA), Region 9, has ultimate jurisdiction for federal water quality standards and requirements in the project area. The project area is also under the jurisdiction of the State Water Resources Control Board (WRCB), with the Region 8 Santa Ana Regional Water Quality Control Board (RWQCB) being the local agency. These agencies enforce the state water quality standards and requirements, as well as coordinating federal reviews, permitting procedures and enforcement actions. Pertinent water quality standards are presented in the previous two subsections of this document.

The major water related issue associated with this proposed project relates to stormwater. Stormwater quality could be affected during construction. Additionally, there will be some loss of pervious surface (about one-half acre) that could result in a minimal increase in surface runoff during storm events. The Basin Plan discusses stormwater quality, runoff, erosion and sedimentation management issues in Chapter 6. The Basin Plan outlines the requirements for Construction NPDES (National Pollutant Discharge Elimination System) Stormwater Permits, which were based on the potential disturbance of five acres or greater of land in the 1995 Basin Plan, but are now required for construction sites of one acre or greater. This project involves the grading of about one-half acre of land and will not require a NPDES general construction stormwater permit or the filing of a Notice of Intent with the WRCB. Implementation of Storm Water Pollution Prevention Plans (SWPPPs) are required during construction. Erosion and sedimentation control is supervised by the Regional Board on the basis of voluntary implementation of Best Management Practices (BMPs) identified in the SWPPP.

The local jurisdiction in the proposed project area that addresses stormwater runoff and erosion and sedimentation, is the City of San Bernardino. The City's Development Code addresses stormwater runoff control and erosion and sediment control. The City requires that a SWPPP be reviewed,

approved and implemented prior to land disturbance activities. The CSBMWD prepares and implements SWPPP's that include BMP's as standard procedure for projects that it implements.

3.3 UTILITIES / SERVICE SYSTEMS

3.3.1 Domestic Water Supply

This project is the installation and operation of a water storage facility. Generally, the primary source of water to the CSBMWD is groundwater from wells that use the Bunker Hill Groundwater Basin. According to the Stipulated Judgment discussed in Section 3.2.2, it is the requirement of the basin adjudication that a minimum amount of water be discharged downstream of the Bunker Hill Basin. Any shortfall in the amount of water discharged must be made up from sources such as the use of imported water, recycled water, etc. This project does not include the extraction of additional amounts of groundwater, only an increase in the water storage capacity at the Palm Reservoir site.

3.3.2 Sewage Treatment

The CSBMWD also serves the area with wastewater collection and treatment services. The CSBMWD operates a regional water reclamation facility with a current treatment design capacity of 42 million gallons per day (MGD). The reclaimed water from the treatment plant complies with the standards and requirements of Title 22 of the California Code of Regulations (Title 22) for recycled water. Recycled water from the treatment plant is discharged into the Santa Ana River in compliance with Title 22 requirements, the Water Discharge Requirements issued for the facility and the Stipulated Judgment for the Santa Ana River Basin.

3.3.3 Solid Waste Disposal

The municipal solid waste from the area is collected by the City of San Bernardino Public Service Department, Integrated Waste Management Division which utilizes disposal facilities operated by the County of San Bernardino Department of Public Works, Solid Waste Management Division. Data provided in the San Bernardino County Countywide Integrated Waste Management Plan indicates that the affected disposal facilities have adequate capacity for the next 15 years.

3.3.4 Natural Gas

The Gas Company (formerly Southern California Gas Company) provides natural gas service to the project area. This project does not propose the use of natural gas.

3.3.5 Electric Power

Southern California Edison (SCE) provides electrical services to the project area. This project does not propose the use of additional electricity beyond that which has and could be used at the site. Water is pumped to the Palm Reservoir site using electricity to power the pumps and motors. This project will not increase the amount of pumping that presently occurs or could occur in the future. This project will only alter the time of day the pumping will occur and is considered a benefit to the electricity supply system in that it will reduce the use of electricity during the peak energy usage periods. The project will also allow the continued generation of the existing hydro-generation facility to generate electricity to supply the existing pumps and motors at the site.

3.4 LAND USE / PLANNING

The project site and most of the immediate area are located in the City of San Bernardino. A small area southwesterly of the site is unincorporated land in the County of San Bernardino unincorporated San Bernardino. The project area is located within the Verdemon Heights Area Plan of the City of San Bernardino General Plan. The project site is included within an area designated general commercial (CG) and industrial (IL) in the City's General Plan.

California Government Code Section 53091 exempts water supply facilities from local zoning restrictions. Such facilities are considered compatible with all land use designations.

3.5 TRANSPORTATION / TRAFFIC

The project is located within a major transportation corridor associated with Cajon Pass. Cajon Pass is a major transportation route through the San Bernardino Mountains and provides access between the southern California coastal area and areas to the east. The 215 Freeway is located northerly of the site. The 215 Freeway intersects Interstate 5 about 3 miles northerly of the site at the mouth of Cajon Pass. Cajon Boulevard (Historic Route 66) is located southerly of the site. Kendall Drive is located northerly of the site adjacent to the 215 Freeway. A major BNSF railway line is located southerly of the site adjacent to Cajon Boulevard. A major Union Pacific rail line is located southerly of Cajon Boulevard.

Access to the site is provided from Palm Avenue. Palm Avenue is a major local street that is designated a Secondary Arterial by the City of San Bernardino. Palm Avenue provides access from the urbanized areas around the project site to the 215 Freeway and other arterial roadways within the City. Cajon Boulevard is designated a Major Arterial and Kendall Drive is designated a Secondary Arterial.

The nearest major airport to the project site is the San Bernardino International Airport (formerly Norton Air Force Base) which is located about 8 miles southeasterly of the site.

3.6 NATURAL RESOURCES

3.6.1 Biological Resources

Vegetation and Habitat

The project area is located on an alluvial fan associated with the Cajon Creek Wash and the San Bernardino Mountains. Soil in the area is alluvium derived primarily from the San Bernardino Mountains. The Cajon Creek drainage area includes both the San Bernardino and San Gabriel mountain ranges. The native habitat in the project area was primarily comprised of alluvial fan sage scrub habitat (AFSS) which is a sub-type of the coastal sage scrub found on the alluvial fans and floodplains of the coastal side of the San Bernardino and San Gabriel mountains. The primary indicator plant of AFSS is Scale-broom (*Lepidospartum squamatum*). This community includes *Platanus racemosa*, *Baccharis salicifolia* and sometimes *populus fremonti*. The project site and adjacent property has been graded, leveled and is subject to ongoing disturbances associated with weed abatement activities. Urban development at varying intensities occurs around the project site. The only vegetation on the site and adjacent areas consists of non-native grasses and weedy

species which are regularly mowed or the land plowed. No native habitat or vegetation occurs on or adjacent to the site. See Figures 3 and 4, Site Photographs.

The project site is not within a State or National Park or Forest. Access to the site is restricted by fences and gates. The site is developed with water supply facilities and has no potential for recreational uses. Existing development on the site and surrounding area has eliminated any potential ecological, scenic or aesthetic resources or values that may occurred in the project area. See Figures 3 and 4 Site Photographs.

Wildlife

According to Figures NRC-1 and NRC-2 of the City of San Bernardino General Plan, the project area is within Potential Habitat for Sensitive Wildlife and a Biological Resources Area. The site is within designated critical habitat for coastal California gnatcatcher (*Polioptila californica californica*) (CAGN) but outside the designated critical habitat of the San Bernardino kangaroo rat (*Dipodomys merriami parvus*) (SBKR). The AFSS habitat found in the project area supports a variety wildlife species. The site has been cleared, graded and developed with water supply facilities. The project area supports a variety of wildlife species that use the AFSS plant community. These include raptors like red-tailed hawks (*Buteo jamaicensis*), coyotes (*Canis latrans*), mockingbirds (*Mimus polyglottos*), and scrub jays (*Aphelocoma coerulescens*). Sensitive species such as the Los Angeles Pocket Mouse (*Perognathus longimembris brevinasus*) and Coast (San Diego) horned lizard (*Phrynosoma coronatum blainvillei*) are also known to occur in the project area.

The site is a fenced and developed water supply facility located within an urbanizing area of the City of San Bernardino. Due the sites small size, current uses and the lack of native habitat, this site is not considered adequate to support use by migratory birds.

To determine the sensitive plant and animal species that are known or suspected to occur in the project area, the California Natural Diversity Database Records (NDDDB) for the USGS – San Bernardino North Quadrangle, 7.5 Minute Series topographic map was reviewed. The NDDDB list of sensitive plant and animal species known to occur within the boundaries of the USGS – San Bernardino North Quadrangle are provided on Table 3.13 -1 below.

3.6.2 Geology and Soils

Geology

The project area is located on the northern margin of what is referred to as the Peninsular Ranges Geomorphic Province of southern California. The Peninsular Range extends southward from the Transverse Range through Baja California and is characterized by Mesozoic-age intrusive rock masses flanked by volcanic, metasedimentary and sedimentary rock.

The project site is located near but within an Alquist Priolo Earthquake Fault Zone. The site is located about 2 miles southerly of the San Andreas Fault Zone, about 2 miles northerly of the San Jacinto Fault Zone and about one mile northerly of the Glen Helen Fault. No known or suspected faults are located on the project site. The Maximum Credible Event (MCE) (Richter Magnitude) for these faults are: 8.0 on the San Andreas Fault; 7.5 on the San Jacinto Fault; and 7.0 on the Glen Helen Fault. As with most of southern California, the project site will most likely be subjected to strong seismically induced ground shaking during the life of the project. The Uniform Building Code

(UBC) designates the project area as Groundshaking Zone 4. The depth to groundwater at the site exceeds 100 feet and is not within an area designated as having high potential for liquefaction area as defined by Figure S-5 of the City General Plan. No hills or step topography exists on or adjacent to the site. According to Figure S-7 of the City of San Bernardino General Plan, the site is not within an area subject to landslides or surficial soil slips. Figure S-6 of the City General Plan indicates the project site is not within a potential land subsidence area.

Paleontological resources, which are in the form of fossil plants or animals, are not known to be in the project area. The alluvial fan material does not preserve fossils well.

Soils

According to the United States Department of Agriculture, Soil Conservation Service Soil Survey of San Bernardino County Southwestern Part California (SCS) the soils on site are designated Tujunga series (TvC) gravelly loamy sand. These soils occur on level to moderately sloping soil on long, broad alluvial fans. Runoff is slow to very slow and the hazard of erosion is slight due to the gravelly surface layer. TvC soil is considered poor topsoil but is generally exhibits good construction properties but is considered fair as a source of sand and gravel. The SCS designates TvC as having a Capability unit of IVs-4 irrigated for agricultural purposes. Soils with such designations are not considered a prime, unique or important agricultural soil.

Paleontological resources, which are in the form of fossilized plants or animals, are not known to be in the project area. Generally, the alluvial fan material does not preserve fossils well.

3.6.3 Mineral Resources

The City of San Bernardino General Plan designates the project area as a mineral resource zone MRZ-2. The State of California Mining and Geology Board defines an MRZ-2 zone as “Areas where the available geologic information indicates that there are significant mineral deposits or that there is likelihood of significant mineral deposits”. The only significant mineral resources in the region are sand, gravel and aggregate material used for base material and the manufacturing of concrete, asphalt, etc. These resources are associated with recent and active stormwater drainages and channels which contain recent alluvium. Due to the presence of the active Lytle Creek channel and the Santa Ana River channel, a large portion of the City of San Bernardino is designated MRZ-2. The soils onsite are considered fair as a source of sand and gravel (see 3.6.2, Soils above).

3.6.4 Visual Resources / Aesthetics

The primary visual resource in the City of San Bernardino are the views of the adjacent San Bernardino Mountains. These views are not unique to individual sites but are available from throughout the City. The only scenic highway routes in the City are State Route 330 and the portion of the 210 Freeway extending from Redlands to Highland. These routes are located in the easterly portion of the City several miles from the project site. Other than the typical views of the mountains from the San Bernardino Valley, no visual resources exist in the project area.

The area around the project site is characterized by open space associated with the Lytle Creek floodplain intermixed with scattered commercial/industrial development. To the north is the 215 Freeway corridor with associated commercial development.

3.7 POPULATION AND HOUSING

As determined from the 2000 U.S. Census, the City of San Bernardino had a population of about 185,400 (California Dept. of Finance Data). Currently, the CSBMWD provides water service to about 200,000 residents. Data provided on Table H-4 of the City of San Bernardino General Plan, states that as of the 2000 census, 47.5% of the population is Hispanic; 45.2% is White; 16.4% is Black; with the remainder being Asian, Pacific Islander, American Indian and other. The average population growth rate of the City has been about 1.3% per year since 1990 which is consistent with the CSBWMD's current number of customers when applied to the 2000 census figures for the City.

3.8 CONSTRUCTION

This subsection is used under NEPA guidance to describe construction aspects not addressed elsewhere. The construction scenario for this project site has been summarized in the project description, Section 2.1.3, and analyzed in more detail under Air Quality Impacts, Section 4.1. The main activities related to construction that will be evaluated in the environmental consequences section of this report include: site clearing, grading, some excavation for the reservoir pad and for site drainage controls and the installation of appurtenant equipment such as piping, valves, etc. All work will be conducted within the areas shown on the site plan, Figure 5.

3.9 ENERGY ISSUES

The project site is already used for water system operations and is located near existing power supplies. No extension of any new energy resource will be required. The new reservoir water will be supplied from current pumping facilities to maintain reservoir levels to provide sufficient operation, fire, and emergency storage. No identifiable increase in pumping and energy consumption will result from this project. The only change will be the times of day that pumping will occur. Water pumping ideally occurs during off-peak electrical usage periods, thus reducing energy demand during peak usage periods. One of the goals of this project is to provide adequate water storage capacity at the Palm Reservoir site to meet emergency and fire flow requirements while reducing the need to pump water during peak energy usage periods.

There will be energy, primarily in the form of petroleum products and perhaps some electricity, consumed by the construction activities.

3.10 COASTAL ZONE MANAGEMENT ACT

The proposed project area is located more than 50 miles from the California coast and therefore, this Act does not apply to the proposed project.

3.11 CULTURAL RESOURCES

3.11.1 Prehistoric Context

The present-day San Bernardino area is a part of the homeland of the Serrano Indians, whose traditional territory is centered at the San Bernardino Mountains, but also includes the southern rim of the Mojave Desert, extending from present-day Victorville eastward to Twentynine Palms. The name "Serrano" was derived from a Spanish term meaning "mountaineer" or "highlander." The

basic written sources on Serrano culture are Kroeber (1925), Strong (1929), and Bean and Smith (1978). The following ethnographic discussion of the Serrano people is based on these sources.

Before European contact, the Serranos were primarily gatherers and hunters, and occasional fishers, who settled mostly where flowing water emerged from the mountains. They were loosely organized into exogamous clans, which were led by hereditary heads, and the clans in turn were affiliated with one of two exogamous moieties. The exact nature of the clans, their structure, function, and number are not known, except that each clan was the largest autonomous political and landholding unit, the core of which was the patrilineage. There was no pan-tribal political union among the clans.

Although contact with Europeans may have occurred as early as 1771 or 1772, Spanish influence on Serrano lifeways was negligible until the 1810s, when a mission *asistencia* was established on the edge of Serrano territory. Between then and the end of the mission era in 1834, most of the Serranos in the San Bernardino Mountains were removed to the nearby missions. At present, most Serrano descendants are found on the San Manuel and the Morongo Indian Reservations, where they participate in ceremonial and political affairs with other Native American groups on an inter-reservation basis.

3.11.2 Historic Context

The City of San Bernardino, one of the oldest communities in the Inland Empire, traces its roots to the Spanish period in California history. The name "San Bernardino" was bestowed on the area around the city in 1819, when the *asistencia* and an associated mission rancho were established in the vicinity under that name. In 1842, during secularization of the mission system, the Mexican authorities in Alta California granted Rancho San Bernardino, along with several adjacent former mission ranchos, to members of a prominent Los Angeles family, the Lugos. An adobe house built by one of the grantees at the site of today's county courthouse became the earliest non-Indian settlement in San Bernardino.

Closer to the project location, the Rancho Muscupiabe land grant was awarded in 1843 to Michael C. White, a naturalized Englishman, but was abandoned a few months later. The Lugos, on the other hand, were engaged in cattle-raising for nine years on their vast domain before selling the entire rancho in 1851 to a group of Mormon settlers who had been dispatched by church leaders in Utah to found a Mormon colony in southern California. Soon after the purchase, the Mormons established a fortified settlement around the Lugo adobe, thus opening the history of the town of San Bernardino. Two years later, the budding town was named county seat for the newly created San Bernardino County, and the next year, in 1854, the City of San Bernardino was incorporated.

Development of the community suffered a devastating setback in 1857 when many of its Mormon founders were recalled to Utah. As a result, San Bernardino lost half its population, and was consequently disincorporated. By the 1880s, however, spurred by the completion of the Santa Fe Railroad in 1885, the rise of the profitable citrus industry, and a general land boom that swept through much of southern California, San Bernardino gradually recovered, reincorporated in 1886, and began a period of rapid growth that lasted well into the 20th century.

The original townsite of San Bernardino, as recorded in 1854, was bounded by present-day Tenth Street, Sierra Way, Rialto Avenue, and I Street. Over the course of the 20th century, especially during the post-WWII boom, the urbanized area of the city expanded greatly, reaching the project

vicinity by the 1960s-1970s. The current APE, located on the northern boundary of the city and approximately eight miles from city center, lies adjacent to the Verdemont neighborhood of San Bernardino, which is one of the later urbanizing areas of the City.

A detailed investigation of the potential for cultural resources to occur on the site and adjacent areas was performed by the consulting firm of CRM TECH. A report of that investigation titled *Identification and Evaluation of Historic Properties Palm No. 3 Reservoir Project* is provided in Appendix A of this document. Data contained in the CRM TECH report is provided in Section 4.11 of this document.

3.12 WILD AND SCENIC RIVERS

The proposed project is located in the urbanized San Bernardino Valley. No rivers designated as wild or scenic exist within the Valley and no adverse effect on a designated Wild & Scenic River System will result.

3.13 ENDANGERED SPECIES

To determine the sensitive plant and animal species that are known or suspected to occur in the project area, the California Natural Diversity Database Records (CNDDB) for the USGS – San Bernardino North Quadrangle, 7.5 minute series topographic map was reviewed. Table 3.13-1 summarizes the species of concern in the project area. Table 3.13-1 provides the common and scientific names of the species of concern.

**Table 3.13-1
CNDDDB RECORDS SEARCH**

Latin Name	Vernacular Name	Federal Status	State Status	CDFG	CNPS	General Habitat	Microhabitat
<i>Batrachoseps gabrieli</i>	San Gabriel slender salamander	N/A	N/A			Known only from the San Gabriel Mtns; found under rocks, wood, fern fronds & on soil at the base of talus slopes.	Most active on the surface in winter and early spring.
<i>Charina bottae umbratica</i>	southern rubber boa	N/A	Threatened			Restricted to the San Bernardino and San Jacinto Mtns; found in a variety of montane forest habitats.	Found in vicinity of streams or wet meadows; requires loose, moist soil for burrowing; seeks cover in rotting logs.
<i>Phrynosoma coronatum (blainvillei)</i>	Coast (San Diego) horned lizard	N/A	N/A	SC		Inhabits coastal sage scrub and chaparral in arid and semi-arid climate conditions.	Prefers friable, rocky, or shallow sandy soils.
<i>Rana muscosa</i>	mountain yellow-legged frog	Endangered	N/A	SC		Federal listing refers to populations in the San Gabriel, San Jacinto & San Bernardino Mtns only.	Always encountered within a few feet of water. Tadpoles may require up to 2 yrs to complete their aquatic development.
<i>Poliophtila californica californica</i>	coastal California gnatcatcher	Threatened	N/A	SC		Obligate, permanent resident of coastal sage scrub below 2500 ft in southern California.	Low, coastal sage scrub in arid washes, on mesas & slopes. Not all areas classified as coastal sage scrub are occupied.
<i>Chaetodipus fallax fallax</i>	northwestern San Diego pocket mouse	N/A	N/A	SC		Coastal scrub, chaparral, grasslands, sagebrush, etc. in western San Diego County.	Sandy, herbaceous areas, usually in association with rocks or coarse gravel.
<i>Dipodomys merriami parvus</i>	San Bernardino kangaroo rat	Endangered	N/A	SC		Alluvial scrub vegetation on sandy loam substrates characteristic of alluvial fans and floodplains.	Needs early to intermediate seral stages.
<i>Neotoma lepida intermedia</i>	San Diego desert woodrat	N/A	N/A	SC		Coastal southern California from San Diego to San Luis Obispo counties.	Moderate to dense canopies preferred. They are particularly abundant in rock outcrops & rocky cliffs & slopes.

Latin Name	Vernacular Name	Federal Status	State Status	CDFG	CNPS	General Habitat	Microhabitat
<i>Perognathus alticola alticola</i>	white-eared pocket mouse	N/A	N/A	SC		Ponderosa & Jeffrey pine habitats; also in mixed chaparral & sagebrush habitats in the San Bernardino Mtns.	Burrows are constructed in loose soil.
<i>Perognathus longimembris brevinasus</i>	Los Angeles pocket mouse	N/A	N/A	SC		Lower elevation grasslands & coastal sage communities in the Los Angeles basin.	Open ground with fine sandy soils. May not dig extensive burrows, hiding under weeds & dead leaves instead.
<i>Arenaria paludicola</i>	marsh sandwort	Endangered	Endangered		1B	Marshes and swamps. Hist. From scattered coll. In CA and in WA; now known from one site in San Luis Obispo and apparently also in Mexico.	Growing up through dense mats of typha, juncus, scirpus, etc. in freshwater marsh. 10-170m.
<i>Berberis nevinii</i>	Nevin's barberry	Endangered	Endangered		1B	Chaparral, cismontane woodland, coastal scrub, riparian scrub.	On steep, n-facing slopes or in low grade sandy washes. 290-1575m.
<i>Brodiaea filifolia</i>	thread-leaved brodiaea	Endangered	Endangered		1B	Cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools.	Usually associated with annual grassland and vernal pools; often surr by shrubland habitats. Clay soils. 35-855m.
<i>Calochortus plummerae</i>	Plummer's mariposa lily	N/A	N/A		1B	Coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, lower montane coniferous forest.	Occurs on rocky and sandy sites, usually of granitic or alluvial material. Can be very common after fire. 90-1610m.
<i>Castilleja lasiorhyncha</i>	San Bernardino Mountains owl's-clover	N/A	N/A		1B	Meadows, pebble plain, upper montane coniferous forest, chaparral.	Mesic to drying soils in open areas of stream and meadow margins or of vernal wet areas. 1135-2390m.
<i>Centromadia pungens ssp. laevis</i>	smooth tarplant	N/A	N/A		1B	Valley and foothill grassland, chenopod scrub, meadows, playas, riparian woodland.	Alkali meadow, alkali scrub; also in disturbed places. 0-480m.

Latin Name	Vernacular Name	Federal Status	State Status	CDFG	CNPS	General Habitat	Microhabitat
<i>Chorizanthe parryi</i> var. <i>parryi</i>	Parry's spineflower	N/A	N/A		3	Coastal scrub, chaparral.	Dry slopes and flats; sometimes at interface of 2 veg types, such as chap and oak woodland; dry, sandy soils. 40-1705m.
<i>Cordylanthus maritimus</i> ssp. <i>maritimus</i>	salt marsh bird's-beak	Endangered	Endangered		1B	Coastal salt marsh, coastal dunes.	Limited to the higher zones of the salt marsh habitat. 0-30m.
<i>Dodecahema leptoceras</i>	slender-horned spineflower	Endangered	Endangered		1B	Chaparral, coastal scrub (alluvial fan sage scrub). Hist. from LAX, Riverside and San Bernardino counties; extirp. from much of range.	Flood deposited terraces and washes; assoc include encelia, dalea, lepidospartum, etc. 200-760m.
<i>Dudleya multicaulis</i>	many-stemmed dudleya	N/A	N/A		1B	Chaparral, coastal scrub, valley and foothill grassland. Endemic to southern California.	In heavy, often clayey soils or grassy slopes. 0-790m.
<i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>	Santa Ana River woollystar	Endangered	Endangered		1B	Coastal scrub, chaparral. Formerly known from Orange and San Bernardino counties; now known from one extended population.	In sandy soils on river floodplains or terraced fluvial deposits. 150-610m.
<i>Fimbristylis thermalis</i>	hot springs fimbristylis	N/A	N/A		2	Meadows (alkaline).	Near hot springs. 120-1340m.
<i>Lycium parishii</i>	Parish's desert-thorn	N/A	N/A		2	Coastal scrub, Sonoran desert scrub.	300-1000m.
<i>Ribes divaricatum</i> var. <i>parishii</i>	Parish's gooseberry	N/A	N/A		1B	Riparian woodland.	Salix swales in riparian habitats. 60-305m.
<i>Schoenus nigricans</i>	black sedge	N/A	N/A		2	Marshes and swamps.	Often in alkaline marshes. 150-2000m.

Notes: Grey highlights indicate that suitable habitat is present onsite.

Figure NRC-2 of the City of San Bernardino General Plan designates the project area as being within a Biological Resource Area. The site is within designated critical habitat for the coastal California gnatcatcher (CAGN) and near, but not within the designated critical habitat of the San Bernardino kangaroo rat (SBKR). The project site has been graded and vegetation is controlled by a regular vegetation control and cleanup program. No native vegetation exists on the site. Adjacent property has also been graded and is regularly disced. Virtually no vegetation exists on the project site or adjacent property. No habitat for CAGN exists on or near the project site (see Figures 3 and 4, Site Photographs). While not within designated critical habitat of the SBKR, some potential does exist for SBKR to occupy the site. Ms. Nancy Ferguson of the U.S. Fish and Wildlife Service (USFWS) recommended that a qualified biologist perform a site evaluation to determine if any potential exists for SBKR to occupy the site. A site evaluation was performed and submitted to Ms. Ferguson. Ms. Ferguson reviewed the habitat assessment and stated in her communication of June 18, 2008 that the USFWS concluded that "implementation of the proposed project is not likely to adversely affect the SBKR and incidental take of this species is not anticipated. In view of this determination, we believe that the interagency consultation requirements of Section 7 of the Endangered species Act of 1973, as amended (16 U.S.C 1531 et seq.) have been satisfied." A copy of Ms. Ferguson's communication is provided as Appendix B of this document. Based on the above evaluation, implementation of this project is not forecast to result in a conflict with any applicable conservation or natural community or habitat conservation plans. No mitigation is required.

The site assessment determined that no burrowing owl or sign of burrowing owl were observed on the project site.

3.14 FLOODPLAIN MANAGEMENT AND PROTECTION OF WETLANDS

According to Flood Insurance Rate Map (FIRM) 06071C7940 F, the project site is located within an area designated Zone X "Areas of 500-year flood; areas of 100-year flood with average depths of less than one foot or with drainage areas less than one square mile; and areas protected by levees from 100-year flood". Hydrology of the site is characterized as sheet flow, which travels from the northwest to the southeast. Refer to Section 3.2 for more discussion of drainage features of the project site and area.

There are no riparian, wetland or aquatic resources on or near the project site. It is currently an existing water supply facility with water storage and pumping equipment.

3.15 FARMLAND PROTECTION

The project site is already dedicated to water facilities use. The project area is essentially disturbed urban land that has been developed with a variety of urban uses. No farming activities or resources occur within the project area of impact or on the project site. The project area is designated for urban uses in applicable land use documents and no agricultural land use designations exist in the project area. As discussed in Section 3.6.2 above, the soils onsite have an SCS capability unit designation of IVs-4 irrigated. Such soils are not considered prime, unique or important agricultural soils.

3.16 COASTAL BARRIER RESOURCES

The project site is located more than 50 miles from the California coast. Thus, this issue does not apply to the project area or to the proposed project.

3.17 OTHER ENVIRONMENTAL ISSUES

3.17.1 Hazards and Hazardous Materials

The project site is an existing water storage facility. No hazardous materials are used or stored on the site. No known uses activities where hazardous materials are used on a routine basis are known to exist in the project area. No hazardous waste disposal or contamination activities are known or suspected to have occurred in the project area. The LUSTIS Geotracker database was examined (<http://geotracker.waterboards.ca.gov/map/>) for this project site. There are no identified sites in the project area. Potential nearby sources of contamination would be the I-215 Freeway and the BNSF and UP railroad tracks.

3.17.2 Noise

The City of San Bernardino and most agencies in the State of California utilize California Department Public Health (DPH) Office of Noise Control standards to establish noise standards within the City. These standards are compatible with the U.S. Department of Housing and Urban Development (HUD) standards and policies for exterior noise levels at residential development.

Noise standards utilize A-weighted decibels (dBA) which approximate the response to the human ear of a broad frequency noise source by discriminating against the very low and high frequencies of the audible spectrum. A-weighted decibels reflect those which are audible to the human ear.

Equivalent sound levels are not measured directly but rather calculated from sound pressure levels typically measured in A-weighted decibels or dBA. The equivalent sound level (Leq) is the constant levels that, over a given period of time, transmits the same amount of acoustic energy as the actual time-varying sound. Equivalent sound levels are the basis for both the Ldn and CNEL scales. As stated, the City of San Bernardino and most other agencies in the State of California utilize the Ldn and CNEL scales.

The major existing noise sources in the project area are: traffic on the 215 Freeway, approximately 800 feet to the north of the project site and the BNSF railroad line located about 700 feet to the southerly of the project site. Traffic along Cajon Boulevard, Palm Avenue and Kendall Drive also generate noise locally. According to Figure N-1 of the City of San Bernardino General Plan, the most significant source of noise in the project area is noise generated by traffic on the 215 Freeway. The project area is designated for commercial development. The nearest residences are located northerly of the 215 Freeway which separates the project site from the existing housing.

Residential uses are subject to the City of San Bernardino goals, policies and standards for noise. For single and multi-family, duplex or mobile homes uses, the exterior noise level is not to exceed 65 decibels (dBA) (or Community Noise Equivalent Level (CNEL) exterior noise levels and 45 dBA CNEL interior noise levels. Data on Figure N-2 of the City General Plan indicates that existing noise levels associated with the 215 Freeway already exceed these noise standards for residences adjacent to the freeway.

Project related construction activities will generate short term increases in noise on and adjacent to the site. However, no sensitive noise receptors exist near the project site which could be affected by construction noise.

3.17.3 Public Services

The project site for the new reservoir is an existing CSBMWD water facility site which contains an existing reservoir, booster pump station and appurtenant water supply equipment. These existing facilities and the proposed reservoir are public service facilities.

All public services are provided to the project area, including the following:

- **Police Protection** – City of San Bernardino Police Department provides police protection. The site is located near unincorporated land in the northwest portion of the City and mutual aid protection is provided by the County of San Bernardino Sheriff's Department. The site is within Community Service Area B of the San Bernardino Police Department which maintains an office at 911 W. Kendall Drive, San Bernardino.
- **Fire Protection** – The City of San Bernardino Fire Department. The project site is located near unincorporated land near the San Bernardino Mountains. Mutual aid is available from the California Department of Forestry (CDF) and the San Bernardino County Fire Department. The nearest fire station is located about one-half mile from the site on Palm Avenue northerly of the 215 Freeway. A CDF station is located about 2 miles northwesterly near the junction of the 15 and 215 Freeways.
- **San Bernardino Unified School District** – The District provides K-12 education. Elementary, middle and high schools are located within about 3 miles of the site.
- **Library** – The City of San Bernardino maintains four libraries to serve the City.
- **Health Services** – Arrowhead Regional Medical Center and St. Bernardine's Medical Center are the nearest medical facilities to the project site. American Medical Response, is located in San Bernardino, provides emergency and ambulance services to the project area.
- **Parks and Recreation** – The City of San Bernardino maintains 52 developed parks and recreational facilities. This includes 19 neighborhood parks; 10 community parks; 17 mini parks; 3 regional parks and 3 special facilities totaling 540 acres. The City also contains 3 golf courses that are available to the public.

With the exception of random trespass or specific emergencies such as earthquakes, the project site does not place any demands on the above services at this time.

3.17.4 Recreation

The project site is dedicated to public facilities use. There are no recreation facilities or areas in the project site vicinity. The project is not growth-inducing. It is intended to correct a deficiency in the current water storage capacity at the site to comply with health and safety requirements for emergency and fire flow capabilities to meet the demand of the current population. The project will not result in the need for more recreational facilities.

3.17.5 Airport Hazards

San Bernardino International Airport (formerly Norton Air Force Base) is located about 8 miles southeasterly of the project site. It is open to public use, and to agencies providing emergency services. It has one 10,000 foot runway, hangars and other general and commercial aircraft facilities and services. The project site is not near any active flight hazard or airport land use zones.

3.17.6 Environmental Justice

Environmental justice issues are related to a minority or low-income population that has or will be exposed to more than its fair share of pollution or environmental degradation if a project is implemented. The project site is located in an area where the existing community population has a median income that is somewhat higher than that of the City as a whole. Development is primarily single-family residential. California State University San Bernardino is located about 3 miles from the project site. Much of the development in the area has occurred in response to the university. This includes housing and services to support students and faculty. The project site is not located within a neighborhood that suffers from exposure to adverse human health or environmental conditions. Refer to the discussion under subsection 3.7, Population and Housing. This project is considered a benefit to the existing population in that it will provide adequate water storage capacity to CSBMWD customers to meet health and safety requirements for emergency and fire flow water service.

3.17.7 Unique Natural Features and Areas

The project site is located on a uniform, slightly sloping alluvial fan area. The site and adjacent areas have been leveled or graded. Urban developments such as commercial and residential uses exist near the site. No unique natural features or areas occur within the project site or surrounding area.

3.17.8 Sole Source Aquifer

Groundwater is located more than 100 feet beneath the project area. The CSBMWD obtains most of its water supply from the Bunker Hill Groundwater Basin. Although this Basin is the CSBMWD's sole source of groundwater supply, the aquifer is not designated by the federal EPA as a "sole source aquifer."

3.17.9 Site Access and Compatibility

Access to the site is provided by the existing Palm Reservoir Access Road from Palm Avenue. Palm Avenue is a secondary arterial street that connects with two major arterials and the 215 Freeway. The project area is sparsely developed but is designated for commercial development. The project site is an existing water supply facility and this project will not alter the land use of the site, increase the need for site access or affect access to other property in the area. The site is fenced and gated which restricts unauthorized access (see Figures 3 and 4). California Government Code Section 53091 exempts water supply facilities from local zoning restrictions. As such water supply facilities such as the proposed project are considered compatible with all land use designations.

3.18 INVASIVE SPECIES

The project area originally contained an alluvial fan sage scrub habitat (AFSS). Development of the project site and other land disturbance activities in the project area has removed the AFSS community which has been replaced by non-native weed and grass species. The site and adjacent property are regularly mowed or plowed in compliance with local weed abatement laws. While scattered, isolated native plants exist on and adjacent to the project site, no native plant communities exist and none will be affected by this project. See Figures 3 and 4.

Chapter 4 ENVIRONMENTAL CONSEQUENCES

The proposed project, the construction of a new 4 MG capacity water storage reservoir, is intended to provide adequate water storage capacity in the CSBMWD's College-Palm Pressure Zone. This pressure zone currently has a 3.2 MG deficiency in storage capacity to meet health and safety requirements for emergency and fire flow water storage requirements. Based upon the existing environmental conditions outlined above in the "Affected Environment" discussion, this section of the Initial Study/Environmental Assessment (IS/EA) evaluates the effects of the changes on the environment. The Environmental Consequences section is presented in the same order as the issues are presented in the previous discussion. The following issues are evaluated by using the questions posed for each issue in the standard CEQA Initial Study Environmental Checklist Form, which is included as Chapter 5 of this document.

4.1 AIR QUALITY

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

As described in the Affected Environment, Section 3.1, air quality management plans are developed utilizing local planning documents to anticipate future growth in the air basin. AQMP's for SoCAB take into consideration anticipated growth that could occur in a region if new development is consistent with development allowed by the current local land use planning documents. The measures, identified in the AQMP to meet air quality goals and objectives include consideration of future growth that is compatible with local land use planning documents. Projects that are consistent or compatible with local land use plans are considered compatible with regional air quality plans. The proposed reservoir project is needed to correct a deficiency in the emergency and fire flow water storage capacity in the College-Palm Pressure Zone to comply with health and safety requirements for water storage capacity to serve the existing population. Therefore, this project is considered compatible with the regional air quality management plans in that it will not induce growth that exceeds or is inconsistent with the planned for growth allowed in local planning documents which were used to develop the regional air quality management plans and the State Implementation Plan (SIP).

b. Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

The proposed project is located within the South Coast Air Basin (SoCAB). The South Coast Air Quality Management District (SCQMD) has jurisdiction over air quality issues and regulations within the SoCAB. The SCAQMD has published its CEQA Air Quality Handbook (CEQA Handbook) that identifies recommended regional local threshold values for air emissions to assist local agencies to determine if a project's emissions could pose a significant threat to air quality and air quality standards. Both regional and local emissions thresholds of significance are provided in Table 4.1-2 below. Projects that result in emissions that are below the thresholds identified in Table 4.1-2 are considered to have a less than significant potential to result in adverse impacts to air quality, human health and the achievement of air quality goals. Projects with less than significant air quality emissions are considered compatible with applicable air quality management plans.

The construction phase of the project may generate fugitive dust during site preparation and reservoir construction, other pollutants from equipment, materials delivery and worker vehicle emissions, and also some pollutant emissions during coating of the reservoir. There should not be any new or additional operational impacts. The proposed reservoir will supply water to the

CSBMWD system by gravity flow. After initial pumping to fill the new reservoir, no additional pumping beyond that currently needed to supply the existing reservoir and the system demand will be required. CSBMWD staff currently visit the site to perform maintenance and monitoring activities. This project will not substantially increase the number or frequency of these visits, only possibly increase the length of time needed to perform these activities. No substantial long-term increase in operations emissions is forecast to occur.

To forecast the air emissions expected to result from implementing this project, the consulting firm of JE Compliance Services, Inc. prepared an air quality analysis and report for the proposed project (JECSI Report). Data contained in the JECSI Report is provided in this section of this document. The entire report with calculations is provided in Appendix C.

Analysis Methodology for Construction Scenario

URBEMIS 2007 (version 9.2.4) was used to estimate emissions during the construction project. Both the SCAQMD and CARB use and suggest the use of the URBEMIS 2007 model for developing emission estimates for construction projects. The following activities were evaluated: mass grading, foundation installation, reservoir construction, and application of architectural coatings. The project schedule is provided in Table 4.1-1.

**Table 4.1-1
PROJECT SCHEDULE**

Activity	Duration (days)*
Mass grading	10
Building - foundation	8
Building - construction	20
Architectural coatings	11

Note: * Presented as working days

Grading Activities

Grading activities will consist of a total of 25,000 square feet of soil being excavated to a depth of 10 feet. Approximately 5 feet of the excavated soil will be compacted onsite and the remainder of the soil will be exported to an offsite location. Emissions from grading activities were estimated using an emission factor of 10 pounds per acre-day. It is estimated that the daily acreage to be disturbed during mass site grading activities will not exceed a half acre.

Emissions from grading activities occur from fugitive dust, equipment exhaust and worker trips. Maximum daily emissions from fugitive dust, off-road equipment and worker trips were generated using URBEMIS 2007. Output files from URBEMIS 2007 are provided in Appendix C. Criteria pollutant emissions from all construction activities are summarized in Table 4.1-2.

**Table 4.1-2
OVERALL MAXIMUM UNMITIGATED DAILY CONSTRUCTION EMISSIONS (lbs/day)**

Activity	VOC	NOx	CO	SOx	PM10			PM2.5			CO2
					Dust	Exh	Total	Dust	Exh	Total	
Mass grading	5.58	48.96	25.78	0.00	5.02	2.17	7.18	1.04	1.99	3.04	4217.64
Foundation - Material delivery	3.47	38.46	14.76	0.03	1.61	1.90	3.51	1.40	1.76	3.17	333,373.21
Construction - Material delivery	1.53	17.20	7.34	0.01	0.61	0.75	1.36	0.53	0.69	1.23	89,379.13
Architectural coatings	59.72	0.03	0.58	0	0	0	0	0	0	0	64.19
Max. Daily Emissions	59.72	48.96	25.78	0.03	5.02	2.17	7.18	1.40	1.99	3.17	333,373.21
Regional significance threshold	75	100	550	150	150	150	150	55	55	55	--
Localized significance threshold*	--	211	2,109	--	33	33	33	9	9	9	--

Note: * Localized significance threshold based on project area size of one acre and sensitive receptor distance of 10 meters from project boundary.

Foundation Activities

Emissions from foundation activities occur from equipment exhaust, worker trips and cement manufacturing. Maximum daily emissions of off-road equipment exhaust and worker trips were calculated using URBEMIS 2007. Maximum daily emissions of on-road equipment were calculated using SCAQMD emission factors and anticipated trip characteristics. Emissions of carbon dioxide from the manufacturing of concrete were calculated outside of URBEMIS. The emissions were calculated using EPA emission factors and estimated concrete usage and are provided on Table 4.1-3.

**Table 4.1-3
SUMMARY OF CARBON DIOXIDE EMISSIONS**

Phase	Emission Type	Source	CO2, lbs/day	Duration of Activity	Total, lbs
Mass grading	Direct	Fugitive dust	0.00	10	0.00
	Direct	Off-road equipment	3897.00	10	38,970.00
	Direct	On-road equipment	196.21	10	1962.10
	Direct	Worker trips	124.43	10	1244.30
Foundation	Direct	Off-road equipment	453.19	8	3625.52
	Direct	On-road equipment	3368.65	8	26,949.20
	Direct	Worker trips	155.54	8	1244.32
	Indirect	Cement manufacturing	329,395.83	3	988,187.50
Building	Direct	Worker trips	180.77	20	3615.40
	Direct	On-road equipment	1263.24	20	25,264.80
	Direct	Off-road equipment	435.12	20	8702.40
	Indirect	Steel manufacturing	87,500.00	20	1,750,000.00

Phase	Emission Type	Source	CO2, lbs/day	Duration of Activity	Total, lbs
Architectural coatings	Direct	Architectural coatings	0.00	11	0.00
	Direct	Worker trips	64.19	11	706.09
				Total, lbs (direct)	112,284.13
				Total, lbs (indirect)	2,738,187.50
				Total, metric tons (direct)	50.93
				Total, metric tons (indirect)	1242.02

Building Activities

URBEMIS identifies two phases of building activity: building construction and architectural coatings. Emissions from building construction are based on off-road equipment and worker trips. Maximum daily emissions from off-road vehicles and equipment were generated using URBEMIS 2007. Maximum daily emissions of on-road equipment were calculated outside URBEMIS using SCAQMD emission factors.

Emissions of VOC from architectural coating activities were calculated outside of URBEMIS 2007. The emissions were calculated using an emission factor for pounds of VOC per surface area coated and the surface area of the reservoir. The emission factor assumed that the painting VOC content was 250 g/L and the paint thickness was one millimeter. Emissions from architectural coating activities are provided in Table 4.1-2.

Emissions of carbon dioxide from the manufacturing of steel were calculated outside of URBEMIS using GHG Protocol emissions factors. Emissions from the manufacture of steel were based on estimated steel usage for the reservoir. Emissions from manufacturing are provided in Table 4.1-3.

Emissions Evaluation

SCAQMD publishes screening levels to determine if a project is regionally significant.¹ Additionally, SCAQMD provides guidance on determining localized significance thresholds (LSTs) for a project.² SCAQMD provides mass rate LSTs look up tables that are a function of the project location, project size, and sensitive receptor distance. A site size of one acre and a receptor distance of 100 meters were used to determine the LSTs for the project.

Unmitigated criteria pollutant emissions from the construction phase of the project are provided in Table 4.1-2. The emissions of criteria pollutants from the construction phase do not exceed the regional significance thresholds or the LSTs.

¹ CEQA Air Quality Handbook, SCAQMD, April 1993, Section 6.4 Significance thresholds updated October 2006.

² Final Localized Significance Threshold Methodology, SCAQMD, June 2003.

Direct and indirect carbon dioxide emissions associated with the project are provided in Table 4.1-3. Estimated total carbon dioxide emissions from the construction project were approximately 1,293 metric tons. Of the 1,293 metric tons, approximately 51 tons were direct emissions occurring at the site, and approximately 1,242 metric tons were indirect emissions produced at another location (cement manufacturing and steel manufacturing). According to the California Greenhouse Gas (GHG) Inventory issued by the California Energy Commission, gross carbon dioxide emissions for the State of California were 492.1 million metric tons in 2004. Carbon dioxide emissions (direct and indirect) from the Palm #3 Reservoir project account for approximately 0.00026% of California's carbon dioxide emissions.

As can be seen in Table 4.1-2, the potential air quality impacts associated with implementation of this project are below both the SCAQMD regional and local thresholds of significance for criteria pollutants. To reduce these less than significant impacts to the greatest extent feasible, the following mitigation measure shall be implemented.

Measures to reduce fugitive dust and air pollutant emissions during construction:

- ***Water active grading sites at least twice daily and when dust is observed migrating from the site.***
- ***Apply non-toxic chemical soil stabilizers according to manufacturer's specifications to inactive construction areas (previously graded areas inactive for 10 days or more).***
- ***Replace ground cover or provide a gravel or paved cover over disturbed or permanently exposed soil areas immediately after construction is completed in the affected area.***
- ***Sweep streets once a day and when soil material is observed on traveled roadways.***
- ***The CSBMWD's contract with the construction contractor(s) shall require that the contractor(s) provide verification that all equipment is in proper tune per the manufacturer's recommendation.***

As noted above, no substantial increase in operational emissions are forecast to occur. No mitigation is required for operational emissions.

General Conformity Rule

The General Conformity Rule was developed to determine if a Federal action complies with the national ambient air quality standards. To meet these national standards, a Federal Agency must demonstrate that every action that it undertakes or supports conforms to the appropriate state implementation plan. Conformity is determined by preparation of a comprehensive Air Quality Conformity Analysis and Determination. To determine if such an analysis is necessary, *DeMinimis* emissions levels for criteria pollutants have been established for individual air basins based on that air basins attainment status for air quality standards for the criteria pollutants. For the SoCAB, the following *DeMinimis* emission levels have been identified.

**Table 4.1-4
GENERAL CONFORMITY EMISSION LEVELS**

Description of Area	VOC	NOx	CO	PM10
South Coast Air Basin	25 tons/year	25 tons/year	100 tons/year	70 tons/year

Projects which generate emissions levels below the *DeMinimis* thresholds for criteria pollutants are considered in conformity with the SIP and exempt from preparation of an Air Quality Conformity Analysis and Determination. The proposed project will only generate short term construction emissions. Based on the data shown in Table 4.1-1 and 4.1-2 above, this project is forecast to generate the following emissions for criteria pollutants.

**Table 4.1-5
PROJECT EMISSIONS**

VOC	NOx	CO	PM10
1.7 tons/year	2.6 tons/year	1.2 tons/year	0.3 tons/year

As shown on Table 4.1-5, all project related emissions are well below the *DeMinimis* emissions threshold levels and an Air Quality Conformity Analysis and Determination is not required.

- c. **Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal state ambient air quality standards (including releasing emissions which exceed quantitative thresholds for ozone precursors)?**

No. The project will not cause a cumulative considerable net increase of any non-attainment criteria pollutants. As shown on Table 4.1-2 above, all project related emissions are associated with short term construction emissions and are well below significance thresholds. As discussed in issues (a) and (b) above, the project is compatible with the goals and strategies of the AQMP's adopted for the SoCAB to attain both state and federal ambient air quality standards and the SIP. As such, this project will not result in any cumulatively considerable net increase in criteria pollutants for which the region is designated non-attainment.

- d. **Would the project expose sensitive receptors to substantial pollutant concentrations?**

No. The only new emissions associated with this project are short term construction emissions. Data provided in Table 4.1-2 above indicates that all emissions are below well below thresholds of significance for criteria pollutants both regionally and locally. The LST's shown in Table 4.1-2 are for receptors located 100 meters from the project site. These emissions are associated with short-term construction emissions and are well below the LST's for sensitive receptors. Sensitive receptors are considered to be children, the elderly and the sick. Schools, day care centers, hospitals and clinics, and retirement or nursing homes are facilities of concern if they are near a proposed project that produces air pollution. There are no sensitive human receptors within about one-quarter mile of the project site and no impact to such receptors will result.

e. **Would the project create objectionable odors affecting a substantial number of people?**

Use of construction equipment may result in some temporary and localized odors from use of diesel fuels. There are no nearby receptors to be affected. Thus, project construction and operation is not anticipated to create any significant objectionable odor impacts because there are no major odor sources associated with this project.

It should be noted that the project site is located within an urbanized area between two major transportation corridors (215 Freeway and the BNSF and UP railroads). The project area currently contains odors generated from the combustion of petroleum products and this project will not alter the present odor environment of the area.

4.2 HYDROLOGY AND WATER QUALITY

a. **Would the project violate any water quality standards or waste discharge requirements?**

The proposed project operations will not discharge any wastewater or other pollutants and therefore, it has no potential to violate water quality standards or waste discharge requirements. There is some potential for stormwater discharges during construction and initial filling of the reservoir. Also, if precipitation occurs during construction of the reservoir, there is potential for erosion and sedimentation from surface stormwater runoff at the exposed construction areas.

The RWQCB has adopted a National Pollutant Discharge Elimination System (NPDES) General Construction Stormwater Permit to address construction on parcels of one acre or more. However, this project will result in the disturbance of less than one acre of land and will not require a NPDES General Construction Stormwater Permit. The City of San Bernardino does require the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that identifies measures that must be implemented during construction to reduce the potential for the discharge of pollutants from the site. The SWPPP must identify and the CSBMWD must implement a set of best management practices (BMPs) that will control runoff from the project construction areas during construction. Measures will also be implemented to prevent erosion and sedimentation and subsequent water quality impacts over the long term. The following measures will be applied to the project.

- ***The CSBMWD shall prepare and implement a construction Storm Water Pollution Prevention Plan (SWPPP). The plan shall identify the best management practices (BMPs) that will be used for that site to minimize the potential for accidental releases of any chemicals or materials on the site that could degrade water quality, including solid waste and require that any spills be cleaned-up, contaminated material properly disposed of and the site returned to pre-discharge condition, or in full compliance with regulatory limits for the discharged material. The portion of the SWPPP that addresses erosion and related sediment discharge shall specify the percentage of pollutant removal from discharges that is proposed to be achieved. At a minimum, BMPs shall be designed to achieve 60 percent removal of sediment and other pollutants from disturbed sites. Measures to be implemented include but are not limited to:***
 - ***Backfill material shall not be stored in areas which are subject to the erosive flow of water and protected from the effects of wind erosion.***

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- ***Measures such as the use of straw bales, sandbags or silt fencing shall be used to capture and retain eroded material on the project site for cleanup.***
 - ***A Spill Prevention and Cleanup Plan that details the methods to be used to control the accidental release and cleanup and disposal of petroleum products released during construction. This Plan shall comply with the requirements of state and local regulations regarding the discharge and cleanup of hazardous substances.***
 - ***For long-term mitigation of site disturbances at the project site, all areas not covered by structures shall be covered with hardscape (concrete, asphalt, gravel, etc.), native vegetation, man-made landscape areas (e.g., grass) and/or compacted soil with adequate drainage facilities to prevent erosion. Revegetated or landscaped areas shall provide sufficient cover to ensure that, after a 2-year period, erosion will not occur from concentrated flows (rills, gully, etc.) and sediment transport will be minimal as part of sheet flows.***

Implementation of these measures will ensure that the proposed project construction activities will be controlled to a sufficient level to prevent significant degradation of water quality.

Regarding the project's operations, only the storage and conveyance of water will occur at this site as a result of this project. Therefore, no adverse impacts to water quality will result that would require treatment of water discharged.

- b. **Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?**

This project will not result in the extraction of additional groundwater from the Basin. This project will only increase the water storage capacity at the Palm Reservoir site. Presently, the CSBMWD meets the water demand from the Palm Reservoir site by continuously pumping water throughout the day to maintain an adequate supply. Implementation of this project will allow the CSBMWD to accommodate the demand for water by storing it in the new reservoir. This will not increase pumping but will allow the CSBMWD to pump water during the off peak electricity usage periods while still maintaining an adequate water supply to meet health and safety requirements.

- c. **Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of a stream or river, in a manner which would result in substantial erosion or siltation onsite or offsite?**

The existing drainage system for the project area of impact would effectively remain the same without mitigation, i.e., sheet flow. Construction activities will temporarily disturb drainage patterns on a small portion of the site. The SWPPP prepared for construction activities will mitigate potential impacts associated with alteration of the site drainage patterns during construction. Once completed, site drainage will remain essentially the same as it presently occurs. The new reservoir will occupy about one-half acre of the site and result in a minimal increase in runoff from the site (about one-half a cubic foot per second in a 100-year storm event). Best management practices listed in item (a) above will be used to ensure minimal effects on drainage patterns.

No stream or river courses will be altered as a result of implementing the proposed project. Regarding potential for erosion and siltation, implementation of the SWPPP and the BMP's will control erosion and sedimentation potential.

- d. **Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite?**

The project will incorporate onsite drainage controls during construction. See item (a) above. Measures used for runoff control, identified in item (a) above are considered adequate to control runoff from the site during construction. No substantial change in the current site drainage patterns will result from this project. Drainage onsite is essentially sheet flow toward the southwest. This project will not alter that drainage pattern. See item (c) above.

With the implementation of the mitigation measures presented in item (a) and using the design standards of the CSBMWD as discussed in item (c), no further mitigation is required.

- e. **Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?**

See response to item (c) above.

- f. **Would the project otherwise substantially degrade water quality?**

With implementation of the SWPPP and its identified BMPs as discussed in item (a) above, the project is not forecast to have any potential to substantially degrade surface water or groundwater quality during construction. This project does not propose the use or storage of hazardous materials that could adversely affect water quality. No additional groundwater pumping will result from implementing this project. No substantial degradation of groundwater will result from implementing this project.

- g. **Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?**

The project does not propose new housing and the project site is not within a 100-year flood hazard area. The project only serves existing housing and is an improvement to the current water supply system to provide compliance with health and safety requirements for emergency and fire flow water storage capacity for the service area. See substantiation for Section 3.14 above. Therefore, no impacts can be identified and no mitigation is required.

- h. **Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows?**

The proposed project will not be located within a 100-year flood hazard area. See substantiation for Section 3.14 above. No impacts can be identified and no mitigation is required.

- i. **Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flood as a result of the failure of a levee or dam?**

The proposed project has no potential to expose either people or structures to substantial loss or injury related to flooding, including failure of a levee or dam. No dams exist upstream of the project

site. Flood control levees due exist upstream of the project site, however, these facilities will not be affected by this project. See item (j) below for discussion of potential flooding associated with failure of the proposed reservoir. No mitigation other than the stormwater controls designed into the project is required.

j. Would the project cause inundation by seiche, tsunami, or mudflow?

There are no natural or manmade sources of inundation for the project area by seiche or tsunami. The project site is located over 50 miles from the Pacific Ocean at an elevation of about 1,700 feet above mean sea level. The project will result in the placement of an additional 4 MG capacity water storage reservoir. The project area is in an area subject to potentially strong seismically induced ground shaking. Strong ground shaking has some potential to result in the failure of the reservoir due to internal seiching during an earthquake event. However, with modern engineered reservoirs, catastrophic failure is not expected to occur. Further, there are no developments immediately adjacent to the project site which would be affected by even the rapid release of stored water in the reservoir. The mitigation measures presented under Section 4.6.2, Geology and Soils, will be adequate to address this issue.

4.3 UTILITIES / SERVICE SYSTEMS

a. Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

This project will not generate wastewater nor require any wastewater treatment. The project only proposes to store potable water on the site. No adverse effects on the existing wastewater treatment system or any waste discharge requirements will result and no mitigation is required.

b. Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

The project will not generate wastewater. No new or expanded wastewater treatment facilities to serve this project will be required. This project will only provide adequate water storage capacity on the site to comply with the health and safety requirements for emergency and fire flow water storage capacity for the existing water demand. See Section 4.2, Hydrology/Water Quality items (a) and (c) above

c. Would the project require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No substantial increase in peak runoff from the site will result from the proposed project. No substantial change in the current stormwater control system will result or be required. See Section 4.2, Hydrology/Water Quality items (a) and (c) above. Temporary stormwater management measures will be implemented during construction of the reservoir. Stormwater will generally continue to be managed in the same manner in the project area after the project is constructed, i.e., through sheet flow. No potential exists to require that new major public stormwater facilities be constructed or existing facilities be expanded.

d. Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

The project will not result in the extraction of additional water from the groundwater basin. The project will only provide adequate water storage capacity to meet the current health and safety requirements for emergency and fire flow water storage capabilities. This project will only alter the times at which water is extracted. Currently, the CSBMWD must pump water throughout the day to maintain supply in the existing reservoir. This project will allow the CSBMWD to pump water during off-peak electricity usage periods while maintaining an adequate water storage capacity at the site. The CSBMWD has adequate water entitlements to supply the demand for water in its service area. See Section 3.2.2. No adverse impact to water supplies is forecast to occur from implementing this project and no mitigation is required.

- e. **Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?**

The project will not generate any wastewater; therefore, the project will not affect the treatment capacity of any wastewater treatment provider. No impact will result and no mitigation is required.

- f. **Would the project be served by a landfill(s) with sufficient permitted capacity to accommodate the project's solid waste disposal needs?**

The volume of solid waste that will be generated during construction will be minimal. Since the site is mowed or disked regularly for weed abatement and control, only a minimal amount of vegetation will be removed during site clearing. Some construction wastes will be generated during construction of the reservoir. No waste will be generated during operation of the reservoir. If a sufficient amount of vegetative wastes are generated, it will be chipped and used as mulch or removed to a licensed landfill. As stated in Section 3.3.3 adequate waste disposal capacity is available at local landfills to accommodate the minimal amount of wastes that may be generated by this project. No hazardous waste is forecast to be generated. If such wastes are produced or encountered, it will also be collected by a licensed hauler and delivered to an appropriately licensed disposal or recycling facility in compliance with state and local laws and regulations. No mitigation is required, other than mandated recycling of materials capable of being recycled in accordance with existing regulations requiring that 50 percent of waste be diverted from landfills and into recycling programs.

- g. **Would the project comply with federal, state and local statutes and regulations related to solid waste?**

The proposed project's construction contractor will be required to comply with all regulations related to solid waste. The CSBMWD will follow its current standard operating procedures for waste disposal once the project is in operation. No additional mitigation is required.

4.4 LAND USE / PLANNING

- a. **Would the project physically divide an established community?**

The reservoir is to be located on an existing 4.29 acre CSBMWD owned parcel that already contains water supply facilities. The site is located within an area that is urbanizing; however, no housing or other development occurs adjacent to the site. Due to the small size of the project and the lack of existing development, no potential to physically divide a community will result. No impacts can be identified and no mitigation is required.

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- b. **Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?**

No adverse conflicts with applicable planning policies are forecast to occur. California Government Code Section 53091 exempts water supply facilities from local zoning restrictions. Such facilities are considered compatible with all land use designations. Therefore, implementation of this project has no potential to conflict with any applicable land use plans, policies or regulations. No impact will result and no mitigation is required.

- c. **Would the project conflict with any applicable habitat conservation plan or natural community or conservation plan?**

Figure NRC-2 of the City of San Bernardino General Plan designates the project area as being within a Biological Resource Area. The scientific names of the species of concern in the project area are provided on Table 3.13-1 of this document. The site is within designated critical habitat for the coastal California gnatcatcher (CAGN) and near, but not within the designated critical habitat of the San Bernardino kangaroo rat (SBKR). The project site has been graded and vegetation is controlled by a regular vegetation control and cleanup program. No native vegetation exists on the site. Adjacent property has also been graded and is regularly disced. Virtually no vegetation exists on the project site or adjacent property. No habitat for CAGN exists on or near the project site. See Figures 3 and 4, Site Photographs. While not within designated critical habitat of the SBKR, some potential does exist for SBKR to occupy the site. Ms. Nancy Ferguson of the USFWS recommended that a qualified biologist perform a site evaluation to determine if any potential exists for SBKR to occupy the site. A site evaluation was performed and submitted to Ms. Ferguson. Ms. Ferguson reviewed the habitat assessment and stated in her communication of June 18, 2008 that the USFWS concluded that "implementation of the proposed project is not likely to adversely affect the SBKR and incidental take of this species is not anticipated. In view of this determination, we believe that the interagency consultation requirements of Section 7 of the Endangered species Act of 1973, as amended (16 U.S.C. 1531 et seq.) have been satisfied". A copy of Ms. Ferguson's communication is provided in Appendix B. Based on the above evaluation, implementation of this project is not forecast to result in a conflict with any applicable conservation or natural community or habitat conservation plans. No mitigation is required.

4.5 TRANSPORTATION / TRAFFIC

- a. **Would the project cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?**

The proposed project will have its only impact on traffic during the period of construction. Construction activities will result in an increase in traffic due to construction worker commuting and equipment and materials deliveries. Construction of the reservoir will result in about 40 additional vehicle trips per day by workers and trucks delivering materials and equipments to the site. These trips will occur throughout the day for about 2 months. These few number of trips for reservoir construction have no potential to substantially increase the existing traffic load and adversely affect the capacity of the existing street system or the level of service on existing roads. No significant impact will result and no mitigation is required.

Operational impacts will be minimal. As the Department already operates a reservoir and pump station on the project site, traffic associated with routine maintenance and monitoring activities

already occurs. It is not anticipated that the project will result in any substantial increase in the existing daily vehicle trips to the site. No traffic impacts can be identified and no mitigation is required

- b. Would the project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?**

As described above in item (a), the proposed project will not generate sufficient traffic during construction or operations to reduce the level of service on any of the roads that serve the project area. No impacts can be identified and no mitigation is required.

- c. Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?**

The project is located approximately 8 miles northwesterly of the San Bernardino International Airport. The project site is not within any flight or approach paths to the airport nor is it within airport plan area. Construction and operation of the project has no potential to affect any air traffic patterns. No impact will occur and no mitigation is required.

- d. Would the project substantially increase hazards due to a design feature (i.e., sharp curves or dangerous intersections) or incompatible uses (i.e., farm equipment)?**

The proposed project will only potentially affect flow of traffic during the construction period. The project does not propose any construction within roads or road rights-of-way. No new roads or redesign of an existing road will result. No temporary or permanent road hazards are forecast to occur from implementing the proposed project. General contract language provided by the CSBMWD in specifications addresses standard measures to maintain safe traffic flows on local streets if necessary. No impact will result and no further mitigation is required.

- e. Would the project result in inadequate emergency access?**

Access to the project site is provided by a road that was developed to provide access to the Palm Reservoir site. The access road “dead ends” at the site and is not used for through traffic including emergency transportation or evacuation purposes. There are no medical facilities in the area, such that construction or operations would impede emergency access. The existing site access is adequate to provide emergency access to the site if necessary. No impact will result and no mitigation is required.

- f. Would the project result in inadequate parking capacity?**

The proposed project does not create any need for new parking capacity at the reservoir site. Adequate parking is available on the site to accommodate the parking needs during both construction and operation of the proposed reservoir and the existing facilities. No offsite parking will be required. No impact will result and no mitigation is required.

- g. Would the project conflict with adopted policies, plans, or programs supporting alternative transportation (i.e., bus turnouts, bicycle racks)?**

This project does not include development of new roads or the redesign or reconstruction of any existing roads. No adverse effect or conflict with alternative transportation programs will result.

The CSBMWD, as a local agency, has its own policies for employees which support alternative transportation and reduction of worker commuting trips.

4.6 NATURAL RESOURCES

4.6.1 Biological Resources

- a. **Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California department of Fish and Game or U.S. Fish and Wildlife Service?**

Figure NRC-2 of the City of San Bernardino General Plan designates the project area as being within a Biological Resource Area. The site is within designated critical habitat for the coastal California gnatcatcher (CAGN) and near, but not within the designated critical habitat of the San Bernardino kangaroo rat (SBKR). The project site has been graded and vegetation is controlled by a regular vegetation control and cleanup program. No native vegetation exists on the site. Adjacent property has also been graded and is regularly disced. Virtually no vegetation exists on the project site or adjacent property. No habitat for CAGN exists on or near the project site. See Figures 3 and 4, Site Photographs. While not within designated critical habitat of the SBKR, some potential does exist for SBKR to occupy the site. Ms. Nancy Ferguson of the USFWS recommended that a qualified biologist perform a site evaluation to determine if any potential exists for SBKR to occupy the site. A site evaluation was performed and submitted to Ms. Ferguson. Ms. Ferguson reviewed the habitat assessment and stated in her communication of June 18, 2008 that the USFWS concluded that "implementation of the proposed project is not likely to adversely affect the SBKR and incidental take of this species is not anticipated. In view of this determination, we believe that the interagency consultation requirements of Section 7 of the Endangered species Act of 1973, as amended (16 U.S.C. 1531 et seq.) have been satisfied". A copy of Ms. Ferguson's communication is provided as Appendix B of this document. Based on the above evaluation, implementation of this project is not forecast to result in a conflict with any applicable conservation or natural community or habitat conservation plans. No mitigation is required.

The project site is not within a State or National Park or Forest. Access to the site is restricted by fences and gates. The site is developed with water supply facilities and has no potential for recreational uses. Existing development on the site and surrounding area has eliminated any potential ecological, scenic or aesthetic resources or values that may occurred in the project area. See Figures 3 and 4 Site Photographs.

The site assessment determined that no burrowing owl or sign of burrowing owl were observed on the project site.

About one-half acre of the project site will be hard surfaces with a reservoir. However, the site is currently graded, compacted and no vegetation occurs on the site. Therefore, the project site provides minimal potential for use as a foraging area by raptors, snakes, small mammals and birds. The project site is fenced and gated and is not accessible by coyotes and other similar predators.

The State of California prohibits the take of active bird nests. However, no trees or other vegetation will be affected by this project and no adverse effect on bird nests will result. No mitigation other than compliance with any applicable state laws is required.

The site is a fenced and developed water supply facility located within an urbanizing area of the City of San Bernardino. Due to the site's small size, current uses and the lack of native habitat, this site is not considered adequate to support use by migratory birds.

None of the animal species identified on Table 3.13-1 of this document were found on the project site. Thus, no mitigation is necessary for such species. Also refer to Sections 3.13 and 4.13.

- b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?**

The Site Review (Appendix B) determined that no wetlands, riparian habitat or other jurisdictional "waters of the United States" occur on the project site. The project area is located in San Bernardino and sheet flow occurs through the general area of the project (i.e., there are no defined water courses through the project site or adjacent area). Figure NRC 2 of the City General Plan indicates the site is not within a potentially sensitive riparian corridor. See Section 4.6.1 item (a) for further substantiation regarding sensitive natural communities. No impact to any sensitive habitats can be identified and no mitigation is required.

- c. Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?**

Please refer to the discussion under the previous issue, item (b).

- d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?**

The project site is fenced and gated. The site contains minimal native vegetation or habitat. Implementation of this project will not alter the existing accessibility or the habitat value of the site. See item (a) above. The Site Review (Appendix B) did not determine any particular sensitivities and determined that no sensitive biological species or their natural habitat are present onsite. No impact can be identified and no mitigation is required.

- e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?**

No local policies or ordinances protecting biological resources include or affect the project site. No biological resources or natural communities or habitat, including trees, exist on the site. No impact to any such resources will result and no mitigation is required.

- f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?**

The project site is within the designated critical habitat of the CAGN and near the designated critical habitat of the SBKR [see item (a) above]. However, no adverse effect on these species or other sensitive species or their habitat is forecast to occur. This conclusion is confirmed in the correspondence from Ms. Nancy Ferguson of the USFWS provided as Appendix B. The site assessment found no species of concern to be affected by the proposed site project and no conflict

with any habitat or natural community plans is forecast to result. No further analysis or mitigation is required.

4.6.2 Geology and Soils

- a. **Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Strong seismic ground shaking? Seismic-related ground failure, including liquefaction? Landslides?**

The project site is located near but within an Alquist Priolo Earthquake Fault Zone. The site is located about 2 miles southerly of the San Andreas Fault Zone and about 2 miles northerly of the San Jacinto Fault Zone. No known faults are located on the project site. The potential for seismically induced ground rupture is considered less than significant. As with most of southern California, the project site will most likely be subjected to strong seismically induced ground shaking during the life of the project. The Uniform Building Code (UBC) designates the project area as Groundshaking Zone 4. The depth to groundwater at the site exceeds 100 feet and the potential for liquefaction is considered less than significant. No hills or step topography exists on or adjacent to the site. According to Figure S-7 of the City of San Bernardino, the site is not within an area subject to landslides or surficial soil slips. Figure S-6 of the City General Plan indicates the project site is not within a potential land subsidence area. Figure S-5 indicates the site is not within an area considered to have a potential for liquefaction. Adequate design and construction standards are provided in the UBC for Groundshaking Zone 4 to reduce the potential for adverse effects to structures to an acceptable level. No housing or other development exists adjacent to the project site.

To mitigate the potential for adverse effects associated with geological and soil constraints on the site, the following measures shall be implemented for this project.

- ***The CSBMWD shall retain a qualified geologist to investigate the project. The recommendations of the geologist shall be incorporated in the design and construction of these facilities.***
- ***The CSBMWD shall retain a qualified soils engineer to perform soil analysis and prepare compaction recommendations on the project site. The recommendations of the soil engineer shall be incorporated into the site construction activities.***
- ***The CSBMWD shall require that design and construction of these facilities follow the recommendation of the structural engineer and/or engineering geologist and at a minimum, meet current building standards and codes including those associated with protection from anticipated seismic events in ground shaking Zone 4 of the Uniform Building Code, including liquefaction if determined to be applicable.***
- ***The design and construction of the reservoir shall also include a method of safely conveying a sudden release of water from the reservoirs in a manner that minimizes the potential for impacts to people and property.***

b. Would the project result in substantial soil erosion or the loss of topsoil?

The project site is an existing water supply facility that has been graded and compacted for the construction of the existing facilities. Construction activities will require the excavation and compaction of soil on about one-half acre of the site to provide adequate support for the reservoir. No native topsoil exists on the project site. Soils onsite are not designated as prime, unique or important agricultural soils (see Section 3.15).

Wind erosion potential (fugitive dust generation) has already been addressed under the issue of Air Quality, Section 4.1. Water erosion through stormwater runoff is addressed under Hydrology and Water Quality, Section 4.2. Mitigation measures to reduce or prevent fugitive dust generation and stormwater runoff are defined in these sections. With the implementation of these measures, no significant soil erosion is forecast to occur. No additional mitigation is required.

In terms of topsoil, site soils excavated during grading will be used to construct the reservoir pad and slopes around the reservoir. Any excess soils will be exported to nearby sites for use on other construction projects. No additional impacts beyond those identified in Sections 4.1 and 4.2 will result and no mitigation beyond that provided in those sections of this document is required.

c. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction or collapse?

These issues are evaluated in item (a) above. No further impacts or mitigation beyond that provided in item (a) is required.

d. Would the project be located on expansive soil, as defined in Table 18 1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

These issues are evaluated in item (a) above. No further impacts or mitigation beyond that provided in item (a) is required.

e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

This project will not generate wastewater nor does it propose the use of septic tanks or any alternative wastewater disposal methods. No impact will result and no mitigation is required.

4.6.3 Mineral Resources

a. Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

The City of San Bernardino General Plan designates the project area as a mineral resource zone MRZ-2. The State of California Mining and Geology Board defines an MRZ-2 zone as "Areas where the available geologic information indicates that there are significant mineral deposits or that there is likelihood of significant mineral deposits". The only significant mineral resources in the region are sand, gravel and aggregate material used for base material and the manufacturing of concrete, asphalt, etc. These resources are associated with recent and active stormwater drainages and channels which contain recent alluvium. Due to the presence of the active Lytle Creek channel and the Santa Ana River channel, a large portion of the City of San Bernardino is designated MRZ-2.

The soils onsite are considered fair as a source of sand and gravel. See Section 3.6.2, Soils above. Due to the small size of the project and the limited value of the soil onsite as a mineral resource, this project will not result in the substantial loss of availability of any mineral resource. It should be noted that should society determine that the value of mineral resources on the project site exceed the value of the water supply facilities, these facilities could be removed and the mineral resources developed. No impact can be identified and no mitigation is required.

- b. Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?**

See item (a) above for discussion. No impact to a local mineral recovery site will result from implementing this project. No mitigation is required.

4.6.4 Visual Resources / Aesthetics

- a. Would the project have a substantial adverse effect on a scenic vista?**

The project site is currently used for water supply facilities. The proposed reservoir is of about the same height and size as the existing reservoir. The only significant visual resource in the project San Bernardino Valley is views of the mountain. The proposed reservoir is not of sufficient height or size to obstruct or interfere with these views or result in a substantial adverse effect on a scenic vista from offsite locations (see Section 3.6.4). No significant impact will result and no mitigation is required.

- b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?**

The project site contains existing water supply facilities that are similar in size and character to the proposed structure. The site does not contain any trees, rock outcroppings or historic structures (see Sections 3.11 and 4.11). According to Figure C-1 of the City General Plan, no scenic highways exist in the project area. No potential to substantially damage any scenic resources can be identified. No mitigation is required.

- c. Would the project substantially degrade the existing visual character or quality of the site and its surroundings?**

See response to items (a) and (b) above. The proposed reservoir will be coated with a neutral shade that blends with the existing structures and surroundings. No substantial change in the visual character or quality of the site and its surroundings will result.

It should be noted that the project area is designated for commercial type development. It should be anticipated that future structures in the project area will be of similar or greater height as the existing and proposed reservoir. The water supply facility will be compatible with surrounding development and will not substantially degrade the visual character of the project area when the commercial development projects are implemented.

- d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?**

The project site contains a minimal amount of lighting. This lighting is used for safety and security purposes. The site is located within an area that contains existing and is proposed for future

commercial development. The site is also near the 215 Freeway corridor which contains a substantial amount of lighting. No new lighting is proposed by this project and no impacts associated with lighting impacts will result.

The proposed reservoir will be coated with a non-reflective neutral shade. No glare will result from this reservoir. No impact will result and no mitigation is required.

4.7 POPULATION AND HOUSING

- a. **Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?**

This project is needed to correct an existing deficiency in the health and safety requirements for emergency and fire flow water storage capacity to serve the existing population. This project will not generate any new jobs or result in the construction of new housing. It will only provide adequate water storage capacity to adequately serve the customers if the College-Palm Pressure Zone. Implementation of this project has no potential to cause or induce any population growth, directly or indirectly.

- b. **Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?**

No housing resources will be impacted by the proposed project. The project will be implemented on the existing Palm Reservoir site. No housing exists on the site. No potential to displace people or existing housing will result. No impact can be identified and no mitigation is required.

- c. **Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?**

The project has no potential to impact any existing housing or cause the displacement of people. No impact is identified and no mitigation is required. Because this project is an enhancement of existing water services, it has no potential to adversely impact any low income or ethnic communities, i.e., no environmental justice impacts.

4.8 CONSTRUCTION ASPECTS

Construction impacts and related mitigation measures are described in various parts of Section 4 of this document. Many of the construction impacts addressed in this document are subject to mitigation and the proposed project can be implemented without any significant adverse short-term environmental effects. No long-term construction impacts are forecast to result from project implementation.

4.9 ENERGY ISSUES

Overall, the project will consume some energy during the construction, primarily the use of petroleum-based fuels for equipment. Due to size, type and duration of construction, the demand for petroleum products is considered minimal and less than significant. Some energy will be consumed by filling the reservoir. Because this project will correct a water storage deficiency, it will not require more energy than the amount currently be used to provide the same water service. This project will only alter the time of day and the frequency that pumping will occur. Adequate energy

supply resources are available at the site to supply the current demand for electricity. Because no increase in the current and anticipated future demand for electricity will result from implementing this project, adequate energy resources are available to supply this project. It should be noted that implementation of this project will actually benefit energy resources by allowing the CSBMWD to pump water during off peak electricity usage periods thus reducing the energy demand on the system during periods of high electricity usage. No significant impact to energy resources will result from implementing this project and no mitigation is required.

4.10 COASTAL ZONE MANAGEMENT ACT

There are no identified impacts for the proposed project. The project is located over 50 miles from the coast line and has no potential to impact any coastal zone management area.

4.11 CULTURAL RESOURCES

- a. **Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?**

To determine the potential for this project to affect cultural resources, CRM TECH performed a detailed investigation of the site in compliance with the requirements of Section 106 of the National Historic Preservation Act.

The following has been summarized from the CRM TECH report provided in Appendix A.

CRM TECH completed a records search at the Archaeological Information Center (AIC), located at the San Bernardino County Museum, Redlands. The AIC is the State of California's official cultural resource records repository for the County of San Bernardino, and a part of the California Historical Resource Information System, established and maintained under the auspices of the Office of Historic Preservation.

During the records search, CRM TECH examined maps and records on file at the AIC for previously identified cultural resources within or near the APE, and existing cultural resources reports pertaining to the project vicinity. Previously identified cultural resources include properties designated as California Historical Landmarks, Points of Historical Interest, or San Bernardino County Landmarks, as well as those listed in the National Register of Historic Places, the California Register of Historical Resources, or the California Historical Resources Inventory.

For the current study, the scope of the records search included the standard one-mile radius from the perimeters of the APE and an expanded 5-mile radius to identify cultural resources in similar geomorphologic contexts as the APE. The purpose of the expanded records search is to assess the sensitivity of the APE for cultural resources and help determine the potential of encountering significant subsurface cultural deposits during earth-moving activities associated with the undertaking.

The expanded records search, as mentioned above, covered the area within a 5-mile radius of the APE for the purpose of identifying any prehistoric archaeological sites situated in the same or a similar geomorphologic context as the APE. The results indicate that only three prehistoric archaeological sites or isolates were previously recorded on the valley floor while, in contrast,

numerous prehistoric sites have been recorded along the foothills and on elevated terraces surrounding the APE, including the rugged terrains of nearby mountains.

Overall, the locations and types of prehistoric sites identified in the expanded records search appear to support existing prehistoric hunter-gatherer settlement-subsistence models for Inland California, which suggest longer-term residential settlement was more likely to occur on elevated terraces, hills, and finger ridges near permanent or reliable sources of water, while the valley floor was more often utilized in resource procurement efforts, travel, and opportunistic camping.

Geomorphologic Analysis

The results of the geomorphologic research reveal the alluvial sediments present within the APE are Holocene or older in age, and are not within any of the recently active stream channels. The location lies between outcrops of **ps**, or Pelona schist of Mesozoic age. Because of the site location, the alluvial sediments are likely thin, reducing the chance of subsurface artifact deposits. The region appears to lack permanent water sources, and thus it is unlikely for any large habitation sites to be found in the vicinity. Based on the information available, the project site is considered to have a low potential for buried prehistoric archaeological resources.

Historical Background Research

Historical sources consulted for this study indicate that the APE apparently remained unsettled and undeveloped throughout the historic period. In the 1890s, a number of criss-crossing roads, a few scattered buildings, and the Santa Fe Railway were present in the surrounding area, but the APE itself remained vacant. The earliest buildings near the APE were first noted in the 1950s, but none of them was located within or adjacent to the APE. At that time, most of the surrounding area evidently remained undeveloped except for agricultural purposes, most notably as citrus groves, and the present-day landscape of the Verdmont area, dominated by single-family residential tracts, did not come into being until well after the 1960s.

Native American Participation

In response to CRM TECH's inquiry, the Native American Heritage Commission reports that the sacred lands record search identified no Native American cultural resources in the vicinity of the APE. However, noting that "the absence of specific site information in the Sacred Lands File does not guarantee the absence of cultural resources in any project area," the commission recommends that local Native American groups be contacted for further information, and provided a list of potential contacts in the region.

Upon receiving the commission's response, CRM TECH initiated correspondence with all seven individuals on the referral list and the organizations they represent. In addition, John Gomez, Jr., Cultural Resources Coordinator for the Ramona Band of Cahuilla Indians, was also contacted. As of this date, Mike Contreras, Cultural Resources Project Manager for the Morongo Band of Mission Indians, Anthony Morales, Chairman of the Gabrieleno/Tongva San Gabriel Band of Mission Indians, and Goldie Walker of the Serrano Nation of Indians have responded to the inquiries by telephone on September 3, 2008.

Mr. Contreras stated that the Morongo Band wishes to defer to other tribes in the area for issues concerning the proposed undertaking. Ms. Walker was concerned about Native American human

remains or artifacts being unearthed during the proposed undertaking, and requested to be notified in the event of such discoveries. Both Ms. Walker and Mr. Morales requested that proper procedures be followed regarding such discoveries. In addition, Mr. Morales requested to be informed of the progress of the undertaking.

Field Survey

The intensive-level field survey produced completely negative results for potential cultural resources. The entire APE was closely inspected for any evidence of human activities dating to the prehistoric or historic periods, but none was found. The entire surface of the APE has been leveled and cleared, with pipes covering the southwestern corner of the property. The existing reservoir in the APE is clearly modern in origin, and demonstrates no special characters in design and construction.

Discussion

The purpose of this study is to identify any "historic properties" or "historical resources" that may exist within or adjacent to the APE, and assess the undertaking's potential to affect such properties, if any. "Historic properties," as defined by the Advisory Council on Historic Preservation, include "prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior" (36 CFR 800.16(l)). The eligibility for inclusion in the National Register is determined by applying the following criteria, developed by the National Park Service as per provision of the National Historic Preservation Act:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and

- (a) That are associated with events that have made a significant contribution to the broad patterns of our history; or
- (b) That are associated with the lives of persons significant in our past; or
- (c) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- (d) That have yielded, or may be likely to yield, information important in prehistory or history. (36 CFR 60.4)

For CEQA-compliance considerations, the State of California's Public Resources Code (PRC) establishes the definitions and criteria for "historical resources," which require similar protection to what NHPA Section 106 mandates for historic properties. "Historical resources," according to PRC §5020.1(j), "includes, but is not limited to, any object, building, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California."

More specifically, CEQA guidelines state that the term "historical resources" applies to any such resources listed in or determined to be eligible for listing in the California Register of Historical Resources, included in a local register of historical resources, or determined to be historically significant by the Lead Agency (Title 14 CCR §15064.5(a)(1)-(3)). Regarding the proper criteria of historical significance, CEQA guidelines mandate that "a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing on the California

Register of Historical Resources" (Title 14 CCR §15064.5(a)(3)). A resource may be listed in the California Register if it meets any of the following criteria:

- (1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- (2) Is associated with the lives of persons important in our past.
- (3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
- (4) Has yielded, or may be likely to yield, information important in prehistory or history. (PRC §5024.1(c))

As discussed above, all research procedures conducted during this study have produced negative results, and no buildings, structures, objects, sites, features, or artifacts more than 50 years of age were encountered throughout the course of the study. In addition, the subsurface sediments within the APE appear to be relatively in low sensitivity for potentially significant archaeological deposits. Based on these findings, and in light of the criteria listed above, the present report concludes that no "historic properties" or "historical resources" exist within or adjacent to the Area of Potential Effects.

Conclusion and Recommendations

Section 106 of the National Historic Preservation Act mandates that federal agencies take into account the effects of their undertakings on historic properties and seek ways to avoid, minimize, or mitigate any adverse effects on such properties (36 CFR 800.1(a)). Similarly, CEQA establishes that "a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment" (PRC §21084.1). "Substantial adverse change," according to PRC §5020.1(q), "means demolition, destruction, relocation, or alteration such that the significance of an historical resource would be impaired."

Since no "historic properties" or "historical resources" have been identified within the APE during this study, CRM TECH presents to the SBMWD, the EPA, and other responsible public agency or agencies the following recommendations regarding the proposed undertaking:

- No "historic properties" or "historical resources" are present within or adjacent to the APE, and thus no "historic properties" or "historical resources" will be affected by the undertaking as currently proposed.
- No further cultural resources investigation is necessary for the proposed undertaking unless project plans undergo such changes as to include areas not covered by this study.
- If buried cultural materials are discovered during grading and/or other earth-moving operations associated with the undertaking, all work in that area should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

The cultural resources study conducted by CRM TECH, found that no "historic properties" or "historic resources" were found within or immediately adjacent to the area of potential effect (APE). No impact to such resources is forecast to occur. Some remote potential for buried cultural resources to be unearthed during construction activities will exist. However, the following standard mitigation will be incorporated as part of the project:

Mitigation measure to prevent any impacts to historical /archeological resources:

- ***In the unlikely event cultural resources are encountered during construction of these facilities, activities in the immediate area of the finds shall be halted and an***

onsite inspection shall be performed immediately by a qualified archaeologist. This professional will be able to assess the find, determine its significance, and make recommendations for appropriate mitigation measures within the guidelines of the California Environmental Quality Act and/or the Federal National Environmental Policy Act (NEPA).

- b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

The study by CRM TECH found that no archaeological resources within or immediately adjacent to the APE. The cultural resources report is provided Appendix A to this document. Again, a general mitigation measure will be applied.

- c. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

The project area consists of alluvial deposits that have undergone substantial erosion and sediment deposition during historic times. Surface soils of porous unconsolidated sand and gravel with minor amounts of clay and silt are estimated to be at least 100 feet deep. This project will result in excavations of about 10 feet. Alluvium of this nature is not considered fossiliferous and the potential for this project to encounter paleontological resources is considered highly unlikely. No unique geologic or physical features occur on the reservoir site. No impacts to such resources are anticipated.

Mitigation measure to prevent impacts to paleontological resources:

- ***In the unlikely event paleontological resources are encountered during construction of these facilities, activities in the immediate area of the finds shall be halted and an onsite inspection shall be performed immediately by a qualified paleontologist. This professional will be able to assess the find, determine its significance, and make recommendations for appropriate mitigation measures within the guidelines of the California Environmental Quality Act and/or the Federal National Environmental Policy Act (NEPA).***

- d. Would the project disturb any human remains, including those interred outside of formal cemeteries?

No known human remains occur within the APE of the project. State and local laws require a standard mitigation measure, which is incorporated into this project as follows.

Mitigation measure to minimize impacts on human remains:

- ***In the unlikely event that human remains should be encountered during the construction of the proposed project, all construction will cease and the City of San Bernardino Police Department shall be contacted immediately but in no circumstance more than 24-hours of the discovery.***

4.12 WILD AND SCENIC RIVERS

The Wild and Scenic Rivers Act does not apply to this project. No such rivers occur within or near the proposed project site.

4.13 ENDANGERED SPECIES

Based on the records reviews and field assessment, no federal or state listed protected or sensitive species are known or suspected to occur on the project site. See Appendix B for concurrence from the USFWS. Some occasional use of the site by foraging raptors would be expected. However, these species are quite mobile and use wide areas of open space. This project will occupy about one-half acre of land within an existing, developed site that contains no vegetation or native habitat. No impact to endangered species will result and no mitigation is required.

4.14 FLOODPLAIN MANAGEMENT AND PROTECTION OF WETLANDS

The project is not within a 100-year floodplain. No wetlands or riparian areas exist on the site. No adverse impact on any floodplain management strategies nor any wetlands has been identified and no mitigation is required.

4.15 FARMLAND PROTECTION

- a. **Would the project convert prime farmland, unique farmland, or farmland of statewide importance, as shown on the maps prepared pursuant to the farmland mapping and monitoring program of the California Resources Agency, to non-agricultural use?**

According to the United States Department of Agriculture, Soil Conservation Service Soil Survey of San Bernardino County Southwestern Part California (SCS) the soils on site are designated Tujunga series (TvC) gavelly loamy sand. These soils occur on level to moderately sloping soil on long, broad alluvial fans. Runoff is slow to very slow and the hazard of erosion is slight due to the gravelly surface layer. TvC soil is considered poor topsoil but is generally exhibits good construction properties but is considered fair as a source of sand and gravel. The SCS designates TvC as having a Capability unit of IVs-4 irrigated for agricultural purposes. Soils with such designations are not considered a prime, unique or important agricultural soil. The project area does not contain any significant farmland and no such activities occur in the project area. No impact to farmland or farming activities will result and no mitigation is required.

- b. **Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?**

No land within the project area is designated for agricultural uses nor is any covered by a Williamson Act contract. No impact will result and no mitigation is required. See item (a) above for further substantiation.

- c. **Would the project involve other changes in the existing environment, which due to their location or nature, could result in conversion of Farmland, to non-agricultural use?**

No. See items (a) and (b) above.

4.16 COASTAL BARRIER RESOURCES

There are no such resources to be affected by the proposed project. The project area is about 50 miles inland from the California coast.

4.17 OTHER IMPACT ISSUES

4.17.1 Hazards and Hazardous Materials

- a. **Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?**

During construction there is a potential for accidental release of petroleum products in quantities that could pose a minimal hazard to people and the environment. An accidental spill of diesel fuel or of other petroleum product, such as oil or transmission fluid from a piece of construction equipment, poses some potential for hazard to both employees and the environment where it occurs. Implementation of the mitigation measure requiring the preparation and implementation of a spill prevention and cleanup plan identified in Section 4.2 above is considered adequate to reduce potential impacts to a less than significant level.

Once constructed, no hazardous substances will be required operate the reservoir. It is possible that such substances may be used on the site to maintain and operate other equipment such as pumps and motors. This equipment is already present on the site and maintenance activities for this equipment already occurs and this project will not alter or increase the level of such maintenance. The Department has established operational procedures that address this issue and comply with local and state laws regarding the proper storage, handling and disposal of hazardous materials. Long-term best management practices will control the accidental releases of petroleum products and other wastes associated with the CSBMWD's operations. No additional mitigation to control accidental releases during operations is required.

- b. **Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?**

See discussion under impacts issue 4.2, Hydrology and Water Quality. A potential for accidental releases of hazardous substances does exist, but all prudent measures for response, containment, clean-up and disposal provide sufficient controls to render this accident potential hazard acceptable in the provision of essential services. With implementation of the measures identified and the mandatory compliance with state and local laws and regulations regarding the proper storage, handling and disposal of hazardous substances, potential exposures to accidental releases of hazardous substances can be managed at a level of no adverse impact on the area's human population and environment. No further mitigation is required.

- c. **Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?**

The project involves the storage of potable water. No hazardous or acutely hazardous substances or materials are associated with this project. No schools are located within one-quarter mile of the project site.

- d. **Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?**

The proposed reservoir site does not have, or is near any “active” listed hazardous materials sites. The proposed project has no potential to create a substantial hazard by exposing the public to such a site. No potential for impact can be identified and no mitigation is required.

- e. **For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?**

The proposed project is located about eight miles northwesterly from the San Bernardino International Airport. The site is not within an airport land use plan and no potential exists to conflict with the local airport or its land use plan. No mitigation is required.

- f. **For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?**

See response to item (e) above.

- g. **Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?**

The project is not located on or adjacent to a public road. None of the proposed facilities will be constructed within or adjacent to a public road. Access to the site is provided from the CSBWD access road that terminates at the project site. Implementation of this project has no potential to impair or physically interfere with an adopted emergency response or evacuation plan. No impact to such plans will result and no mitigation is required.

- h. **Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?**

The project does not involve placing any new population or housing within a wildland fire hazard area. The site is within an urbanizing. The site and the adjacent property have been cleared of all vegetation. According to Figure S-9 of the City of San Bernardino General Plan, the project site is not within an area designated to be a High or Moderate Fire Hazard Area. It should be noted that the purpose of this project is to correct a shortfall in the fire flow water storage capacity at the site. This project will provide adequate water storage capacity to comply with health and safety requirements for emergency and fire flow capabilities at the Palm Reservoir site. Thus the project is considered a benefit to fire protection services. No impact can be identified and no mitigation is required.

4.17.2 Noise

- a. **Would the project result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?**

No. Construction activities could increase noise levels in the area adjacent to the proposed reservoir site. The construction activities needed for this project will involve the use of certain noise-generating construction equipment. Noise levels are measured in decibels (dB) with the loader the noise the higher the dB. The ranges of noise that are described as follows are from U.S. Environmental Protection data. Compactors, front loaders, backhoes, scrapers, graders and pavers produce noise levels of 72-95 dB at a distance of 50 feet from the operating equipment. Trucks

typically produce 82-93 dB at a distance of 50 feet. These higher noise levels are generated when the equipment is under full operating load.

Noise standards utilize A-weighted decibels (dBA) which approximate the response to the human ear of a broad frequency noise source by discriminating against the very low and high frequencies of the audible spectrum. A-weighted decibels reflect those which are audible to the human ear.

Equivalent sound levels are not measured directly but rather calculated from sound pressure levels typically measured in A-weighted decibels or dBA. The equivalent sound level (Leq) is the constant levels that, over a given period of time, transmits the same amount of acoustic energy as the actual time-varying sound. Equivalent sound levels are the basis for both the Ldn and CNEL scales. The City of San Bernardino and most other agencies in the State of California utilize the Ldn and CNEL scales.

Day-night average sound levels are a measure of the cumulative noise exposure of the community over a 24-hour period. The Ldn value results from a summation of hourly Leq's over a 24-hour time period with an increased weighting factor applied to the nighttime period between 10:00 pm and 7:00 am. This noise rating scheme takes into account those subjectively more annoying noise events which occur during the normal sleeping hours. Noise standards are generally applicable to long term, permanent noise levels averaged over a 24-hour period. Construction noise generally occurs during the less noise sensitive daylight hours and is generally considered a short-term nuisance due to its temporary nature and time of occurrence.

Noise diminishes at a rate of about 6 db for each doubling of the distance from the source without attenuation by structure such as buildings, land form, etc. This means the worst-case construction noise levels on the exterior of the nearest sensitive receptors (residences located about 1,400 feet northerly of the project site) would be about 60 dB. This is below the City noise standard of 65 dBA for residential units. However, the 215 Freeway is located between the project site and these residences and the noise levels at the freeway exceed 70 dB. Therefore, current noise levels at these residences already exceeds the noise forecast to result from construction of this project and the noise associated with construction of this project will not be audible at these residences.

Land southerly, westerly and easterly of the project site is essentially vacant. The only existing uses are some commercial operations near the freeway. To the southwest is Cajon Boulevard, a major arterial and the BNSF and UP Pacific railroads transportation corridor. These are existing activities that produce noise levels that exceed potential noise levels associated with construction and operation of the proposed project.

Construction noise associated with this project is considered a short-term nuisance, not health threatening and is considered a less than significant impact. Mitigation is provided to reduce potential construction noise to the greatest extent feasible.

Some potential will exist to expose people working on the site during construction. Mitigation provided below will reduce the potential effects of noise on personnel present onsite during construction to a less than significant level.

This project does not propose any new permanent noise sources. No new pumps or motors will be required to operate the proposed reservoir. The storage of water in the reservoir will not generate any noise. The CSBMWD must comply with the City of San Bernardino noise standards

for receptors near the project site. Operations noise generated by filling the reservoir will not be a new noise source but is required to comply with the City noise standards when applicable.

Mitigation measures to reduce construction noise impacts:

- ***Construction will be limited to the daylight hours, typically 7 a.m. to 7 p.m. on weekdays, and between 9 a.m. and 6 p.m. on Saturday, and will not occur on Sundays or federal holidays, except in emergencies.***
- ***All construction vehicles and fixed or mobile equipment will be equipped with properly operating and maintained mufflers.***
- ***All employees that will be exposed to noise levels greater than 75 dB over an 8-hour period will be provided with adequate hearing protection devices to ensure no hearing damage will result from construction activities.***
- ***If equipment is being used that can cause hearing damage at adjacent noise receptor locations (distance attenuation will be taken into account), portable noise barriers will be installed that are demonstrated to be adequate to reduce noise levels at receptor locations below hearing damage thresholds.***

Implementation of these measures will be sufficient to reduce potential construction noise impacts to a level of nonsignificance.

- b. Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?**

Construction of this project will require the use of standard construction equipment. Such equipment does not produce excessive groundborne noise or vibration. The issue of potential construction noise or vibration exposure is addressed under item (a) above. For construction activities, mitigation is identified that will be implemented to reduce potentially substantial noise and vibration impacts to an acceptable level of impact. From an operational standpoint, noise and vibration is not forecast to increase by a perceptible amount because reservoir operation, the primary sources of noise and vibration expected from this project, will be limited to periodic refilling of the reservoir. The CSBMWD shall comply with applicable noise standards at near by receptors for operation of this proposed reservoir. No further mitigation is required.

- c. Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?**

No. The information presented in the project description and the analysis presented above demonstrate that a minimal increase in ambient noise levels may occur at the reservoir site. No substantial impact will result and no mitigation beyond that identified above is required.

- d. Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?**

Yes. The analysis presented above demonstrates that a substantial increase in temporary (construction) noise levels may occur in the project vicinity. However, there are no sensitive receptors that will be affected. Implementation of the mitigation provided in item (a) above is considered adequate to reduce potential impacts on and adjacent to the project site to a level of non-significance. No additional mitigation is required.

-
- e. **For a project located within an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?**

The project area is located approximately eight miles from the San Bernardino International Airport. No airport or air operations noise impacts will result and no mitigation is required.

- f. **For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?**

See item (e) above.

4.17.3 Public Services

- a. **Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: Fire protection? Police protection? Schools? Parks? Other public facilities?**

The proposed project construction activities have a potential to cause minor spills of petroleum products, or to require emergency medical response for construction workers. No vegetation or other flammable materials exist on the site and the potential for fires to occur is minimal. However, the contractor will have equipment available to handle all but the most serious of fires, spills and medical emergencies, and if an accident occurs, adequate emergency medical facilities are available. The random requirement for these services makes them impossible to quantify, but demand for fire and emergency response during the window of construction is not forecast to pose any unusual risks or to constitute a substantial demand for these services.

The only police or fire protection likely to be required for operations would be trespass or theft of equipment or material at the reservoir site. The site is fenced and gated and access is restricted to CSBMWD personnel. Equipment is housed in structures that are locked. The site does not contain items that are accessible, easily taken or considered valuable for theft. The site is an existing water supply facility that contains an existing reservoir. This facility has been in operation for many years without placing a burden on fire and police protection services. Resources to respond to any situations are available primarily through the City of San Bernardino Police and Fire Departments. No significant impact can be identified and no mitigation beyond the CSBMWD's standard facility operations is required

The proposed project itself is an improvement to fire protection services by providing adequate water storage capabilities to meet health and safety requirements for emergencies and fire flow for the existing population. It is not forecast to cause any population growth during construction or future operations. Thus, no additional demand for school, parks or other public facilities is forecast to occur. Implementation of this project will ensure that the project parcel of ten acres, which is already owned by the Department, will remain partially as open space, with the rest dedicated to water facilities.

4.17.4 Recreation

- a. **Would the project increase the use of existing neighborhood and regional parks or other recreation facilities such that substantial physical deterioration of the facility would occur or be accelerated?**

The project is not forecast to cause any increase in demand for any recreational facilities in the project area since no increase in population is forecast to occur as a result of implementing the project. No impact can be identified and no mitigation is proposed.

- b. **Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?**

As noted above, the proposed project will not increase the demand for recreational facilities and no adverse impacts to such facilities will result. No mitigation is required.

4.17.5 Airport Hazards

The project area is located approximately 8 miles from the San Bernardino International Airport. Other than random over flights of the site, no potential exists for aircraft hazards to affect this site will result. No airport-related hazards will affect the reservoir site. No mitigation is required.

4.17.6 Environmental Justice

No impact. Environmental justice issues are related to a minority or low-income population that has or will be exposed to more than its fair share of pollution or environmental degradation if a project is implemented. The project site is located in an area where the existing community population has a median income that is somewhat higher than that of the City as a whole. Development is primarily single-family residential. California State University San Bernardino is located about 3 miles from the project site. Much of the development in the area has occurred in response to the university. This includes housing and services to support students and faculty. The project site is not located within a neighborhood that suffers from exposure to adverse human health or environmental conditions. Refer to the discussion under Section 3.7, Population and Housing. This project is considered a benefit to the existing population in that it will provide adequate water storage capacity to CSBMWD customers to meet health and safety requirements for emergency and fire flow water service.

4.17.7 Unique Natural Features and Areas

No impact. The project site is located on a uniform, slightly sloping alluvial fan area. The site and adjacent areas have been leveled or graded. Urban development such as commercial and residential uses exist near the site. No unique natural features exist on or near the site and no such resources will be affected by this project.

4.17.8 Sole Source Aquifer

No impact. The Bunker Hill Groundwater Basin is not designated a sole source aquifer.

4.17.9 Site Access and Compatibility

Access to the site is provided by the existing Palm Reservoir Access Road from Palm Avenue. Palm Avenue is a secondary arterial street that connects with two major arterials and the 215 Freeway. The project area is sparsely developed but is designated for commercial development. The project site is an existing water supply facility and this project will not alter the land use of the site, increase the need for site access or affect access to other property in the area. The site is fenced and gated which restricts unauthorized access, see Figures 3 and 4. California Government Code Section 53091 exempts water supply facilities from local zoning restrictions. As such water supply facilities such as the proposed project are considered compatible with all land use designations.

4.17.10 Irreversible/Irretrievable Commitments of Resources

The proposed project will utilize natural resources such as steel, sand, gravel and concrete to construct the reservoir and appurtenant equipment (pipes, valves, etc.) This project will also commit the land to its continued use for water supply facilities. These are not considered irreversible/irretrievable commitments of these resources. Should the CSBMWD decide that the proposed facilities are no longer needed, the facilities could be demolished and the steel, concrete and other materials recycled for other uses. Implementation of this project is not an irreversible commitment of the site to water facilities uses. The CSBMWD could decide to remove of the water facilities and allow the development of other uses of the site. Water stored at the site is not considered an irretrievable resource. Water used in the CSBMWD service area is not a lost resource. It is recycled, percolated, evaporates or becomes surface runoff and is part of the ongoing chain of water use on the planet.

In the long term, this project will not increase the use of energy to transport water. Currently, the CSBMWD uses energy to pump water into the existing reservoir. This project will not increase the amount of water pumping that will be needed, only allow for pumping to occur during the non-peak energy usage periods by providing additional storage capacity for the College-Palm Pressure Zone.

This project will result in an increase in the short term use of energy to manufacture, deliver and construct the proposed facilities. The use of non-renewable energy sources such as petroleum products and possibly natural gas and/or coal is considered a irreversible, irretrievable commitment of these natural resources. However, this commitment is short-term and based on the minimal amount of these resources that will be consumed in relation to the energy resources available, is considered a less than significant impact.

4.18 INVASIVE SPECIES

The project area originally contained an alluvial fan sage scrub habitat (AFSS). Development of the project site and other land disturbance activities in the project area have removed the AFSS community which has been replaced by non-native weed and grass species. The site and adjacent property are regularly mowed or plowed in compliance with local weed abatement laws. No native plant communities exist on or adjacent to the project site and none will be affected by this project. Ongoing maintenance by the CSBMWD at its existing facilities controls invasive weed species and the same maintenance program will continue to be implemented at this site.

Chapter 5 CEQA CHECKLIST FORM

(This form is included here for CEQA compliance.)

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input checked="" type="checkbox"/> Geology / Soils |
| <input checked="" type="checkbox"/> Hazards & Hazardous Materials | <input checked="" type="checkbox"/> Hydrology / Water Quality | <input type="checkbox"/> Land Use / Planning |
| <input type="checkbox"/> Mineral Resources | <input checked="" type="checkbox"/> Noise | <input type="checkbox"/> Population / Housing |
| <input checked="" type="checkbox"/> Public Services | <input type="checkbox"/> Recreation | <input checked="" type="checkbox"/> Transportation / Traffic |
| <input type="checkbox"/> Utilities / Service Systems | <input checked="" type="checkbox"/> Mandatory Findings of Significance | |

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation, the following finding is made:

- ☐ The proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ Although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ The proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ The proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it may analyze only the effects that remain to be addressed.
- ☐ Although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature (prepared by)

Date

Signature

Date

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
I. AESTHETICS – Would the project:				
a. Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

SUBSTANTIATION (check ___ if project is located within the viewshed of any Scenic Route listed in the General Plan):

See Sections 3.6.4 and 4.6.4 ,Visual Resources/Aesthetics

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
II. AGRICULTURE RESOURCES – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SUBSTANTIATION (check ___ if project is located in the Important Farmlands Overlay):

See Sections 3.15 and 4.15, Farmland Protection

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
III. AIR QUALITY – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SUBSTANTIATION (discuss conformity with the South Coast Air Quality Management Plan, if applicable):

See Sections 3.1 and 4.1, Air Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES – Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

SUBSTANTIATION (check if project is located in the Biological Resources Overlay ___ or contains habitat for any species listed in the California Natural Diversity Database ___):

See Sections 3.6.1 and 4.6.1, Biological Resources and Sections 3.13 and 4.13, Endangered Species

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
V. CULTURAL RESOURCES – Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SUBSTANTIATION (check if the project is located in the Cultural ____ or Paleontologic ____ Resources overlays or cite results of cultural resource review):

See Sections 3.11 and 4.11, Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
VI. GEOLOGY AND SOILS – Would the project:				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
• Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Strong seismic ground shaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Be located on expansive soil, as defined in Table 18 1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SUBSTANTIATION (check ☒ if project is located in the Geologic Hazards Overlay District):

See Sections 3.6.2 and 4.6.2, Geology and Soils

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
VII. HAZARDS AND HAZARDOUS MATERIALS –				
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SUBSTANTIATION:

See Sections 3.17.1 and 4.17.1, Hazards and Hazardous Materials and Sections 3.17.5 and 4.17.5, Airport Hazards

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
VIII. HYDROLOGY AND WATER QUALITY – Would the project:				
a. Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation onsite or offsite?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j. Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SUBSTANTIATION:

See Sections 3.2 and 4.2, Hydrology and Water Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
IX. LAND USE AND PLANNING – Would the project:				
a. Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SUBSTANTIATION:

See Sections 3.4 and 4.4, Land Use and Planning

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
X. MINERAL RESOURCES – Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SUBSTANTIATION (check ___ if project is located within the Mineral Resources Zone Overlay):

See Sections 3.6.3 and 4.6.3, Mineral Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
XI. NOISE – Would the project result in:				
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SUBSTANTIATION (check if the project is located in the Noise Hazard Overlay District ____ or is subject to severe noise levels according to the General Plan Noise Element ____):

See Sections 3.17.2 and 4.17.2, Noise

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
XII. POPULATION AND HOUSING – Would the project:				
a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SUBSTANTIATION:

See Sections 3.7 and 4.7, Population and Housing

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
XIII. PUBLIC SERVICES – Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SUBSTANTIATION:

See Sections 3.17.3 and 4.17.3, Public Services

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
XIV. RECREATION –				
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SUBSTANTIATION:

See Sections 3.17.4 and 4.17.4, Recreation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
XV. TRANSPORTATION/TRAFFIC – Would the project:				
a. Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SUBSTANTIATION:

See Sections 3.5 and 4.5, Transportation/Traffic

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
XVI. UTILITIES AND SERVICE SYSTEMS – Would the project:				
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Be served by a landfill(s) with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SUBSTANTIATION:

See Sections 3.2 and 4.2, Hydrology and Water Quality and Sections 3.3 and 4.3, Utilities and Service Systems

Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
--------------------------------------	---	------------------------------------	--------------

XVII. MANDATORY FINDINGS OF SIGNIFICANCE –

- | | | | | | |
|----|---|--------------------------|-------------------------------------|--------------------------|-------------------------------------|
| a. | Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. | Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c. | Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

SUBSTANTIATION:

- a-c. The City of San Bernardino Municipal Water Department's Palm-College Pressure is deficient in meeting health and safety requirements for emergency and fire flow water storage capacity. It is the purpose of this project to correct this deficiency by construction and operating a 4 MG water storage reservoir at the existing Palm Reservoir site. The environmental analysis in this document indicates that this reservoir can be installed and operated without causing short or long-term environmental impacts that are either individually or cumulatively significant with implementation of the mitigation measures provided in this document. This project is a stand-alone project which is not dependant on any other projects. The project is intended to satisfy an existing demand for emergency and fire flow water storage capacity and should be constructed regardless of whether or not any other projects are developed.

After evaluating all potential environmental issues, the following issues were determined to be nonsignificant without any mitigation (assuming that the standard engineering design and operations practices used by the CSBMWD are followed): aesthetics, agricultural resources, hazards/hazardous materials, land use/planning, mineral resources, population/housing, public services, recreation, transportation/circulation, and utilities and service systems. Based on a potential for significant environmental impact, the following issues required mitigated to control or avoid such impacts: air quality, cultural resources, geology/soils, hydrology/water quality, and noise. With implementation of the recommended mitigation measures, the CSBMWD can implement the proposed Palm # 3 Reservoir Project without causing any significant adverse effects to humans or the environment.

Based on the data and analysis in this document, the CSBMWD proposes to adopt a Negative Declaration with mitigation as the appropriate environmental determination for this project to comply with the California Environmental Quality Act. The Department will distribute this document for a 30-day public review period under a Notice of Intent to Adopt a Negative Declaration. At the conclusion of the review period, the Department will consider adopting the Negative Declaration after considering all comments submitted on this project.

Chapter 6 ALTERNATIVES ANALYSIS

6.1 NO ACTION ALTERNATIVE

The No Action alternative would be the continued operation of the site as a water supply facility. The site would remain in its current disturbed condition and operations would remain as they are presently. The CSBMWD would continue to operate the existing water supply facilities and maintain the site through its weed control/abatement program. The CSBMWD's College-Palm Pressure Zone would continue to be substantially deficient in its health and safety requirements for emergency and fire flow water storage capacity. This deficiency would increase as the demand for water increases in the service area, thus perpetuating and exacerbating the current unsafe condition.

Thus, the implementation of the no action alternative would not meet the immediate demand of the CSBMWD customers. Public health, safety and welfare concerns would continue to be affected if this new reservoir is not constructed and operated.

6.2 ALTERNATIVE SITES

The purpose in examining alternatives to a project is to determine whether there are alternatives that can reduce the impacts that will be caused by implementing the preferred project. This proposed reservoir is being implemented to correct the existing water storage deficiency in the College-Palm Pressure Zone. That limits the feasible sites available to sites that are owned by the CSBMWD that are at an appropriate elevation to serve that pressure zone. Sites at a lower elevation would require extensive use of electricity to pump water "uphill" to a storage facility which is essentially the present condition. A reservoir at a higher elevation would require some method of reducing the water pressure to serve the College-Palm Pressure Zone. The use of additional pumping to get water to the higher pressure zone would not meet one of the primary objectives of the project which is to reduce the use of electricity to supply the current demand in the College-Palm Pressure Zone. The College-Palm Pressure Zone is located in one of the Department's higher pressure zones which has limited water supply facilities (wells). The primary sources of water in the Bunker Hill Groundwater Basin is from wells located at lower elevations where the aquifer is deeper and contains better water producing soils (sands, gravels, etc.). Therefore, placing a reservoir at a higher elevation would require additional pumping and electricity usage to provide the required storage capacity.

The only CSBMWD property that is located at an appropriate elevation is in the Devil Canyon area. This site is not developed and is located nearer the San Andreas Fault and presents several constraints and the potential for greater impacts to the environment than use of the existing Palm Reservoir site. The Devil Canyon site contains native habitat that would require removal. That site would require extensive grading to create a buildable site. The site contains an existing including 48-inch water transmission pipeline operated by the San Bernardino Valley Municipal Water District that could adversely affect a reservoir at that site in case of pipe rupture or substantial maintenance and repair of the pipeline. The Devil Canyon site is more remote which presents some security constraints. The Devil Canyon site does not contain sufficient existing utilities or security or communications equipment which must be extended to the site if the proposed reservoir were placed on that site.

The Palm Reservoir site contains existing infrastructure (pipes, valves, etc.) which were placed on the site when developed in anticipation of additional water storage facilities at the site. The Palm

Reservoir site contains an existing hydro-generation facility that allows the CSBMWD to utilize energy from water delivered from higher elevations to the Palm Reservoir site to generate electricity which is used to operate the existing booster pump station at the site.

The Palm Reservoir site was developed with the intent of placing additional water storage capacity at the site. No other site is available to the CSBMWD that can feasibly meet the goals and objectives of this project while minimizing peak hour electricity usage and environmental and economic impacts of construction and operation of the needed water storage capacity.

Chapter 7 CUMULATIVE IMPACTS

There may be temporary cumulative impacts during construction of the project, such as noise impacts during construction due to activities on the site being combined with existing railroad traffic on the BNSF and UP routes and on the 215 Freeway. However, no sensitive noise receptors are present in the area affected by this project. Due to these other noise sources, noise levels in the project area already exceed the levels which will be generated by this project. No long-term operations noise level increases are forecast to occur from operation of this project. Minimal increases in air emissions will occur during construction. However, these emission increases are temporary and are well below both state and federal thresholds of significance. The purpose of the proposed project is to correct a deficiency in the existing emergency and fire flow water storage requirements in the Palm-College Pressure Zone. As such, it will not induce growth but rather provide the required water storage capacity to satisfy health and safety requirements to serve the existing population.

The project will be constructed on an existing CSBMWD site that is designated for water supply facilities. The site is gated and fenced and has been developed with water supply facilities and is not open to public. The site does not contain native habitat which could support sensitive biological resources. No individual or cumulative loss of recreational uses or biological resources will result.

The proposed project will not increase the amount of water extracted or consumed in the service area. The project will only provide adequate water storage capacity to meet existing requirements. This is viewed as a benefit to energy usage in that it will allow CSBMWD to pump water during off-peak electricity usage periods thus reducing the demand for electricity during peak use periods.

No impacts that are considered individually limited but cumulatively considerable are forecast to result from implementing this project

Chapter 8 SUMMARY OF MITIGATION MEASURES

The following mitigation measures will be incorporated into this project:

Measures to reduce fugitive dust and air pollutant emissions during construction:

- Water active grading sites at least twice daily and when dust is observed migrating from the site.
- Apply non-toxic chemical soil stabilizers according to manufacturers specifications to inactive construction areas (previously graded areas inactive for 10 days or more).
- Replace ground cover or provide gravel or paved cover over disturbed or permanently exposed soil areas immediately after construction is completed in the affected area.
- Sweep streets once a day and when soil material is observed on traveled roadways.
- The CSBMWD's contract with the construction contractor(s) shall require that the contractor(s) provide verification that all equipment is in proper tune per the manufacturer's recommendation.

Measures to minimize impacts to surface water quality:

- The CSBMWD shall prepare and implement a construction Storm Water Pollution Prevention Plan (SWPPP). The plan shall identify the best management practices (BMPs) that will be used for that site to minimize the potential for accidental releases of any chemicals or materials on the site that could degrade water quality, including solid waste and require that any spills be cleaned-up, contaminated material properly disposed of and the site returned to pre-discharge condition, or in full compliance with regulatory limits for the discharged material. The portion of the SWPPP that addresses erosion and related sediment discharge shall specify the percentage of pollutant removal from discharges that is proposed to be achieved. At a minimum, BMPs shall be designed to achieve 60 percent removal of sediment and other pollutants from disturbed sites. Measures to be implemented include but are not limited to:
 - Backfill material shall not be stored in areas which are subject to the erosive flow of water and protected from the effects of wind erosion.
 - Measures such as the use of straw bales, sandbags or silt fencing shall be used to capture and retain eroded material on the project site for cleanup.
 - A Spill Prevention and Cleanup Plan that details the methods to be used to control the accidental release and cleanup and disposal of petroleum products released during construction. This Plan shall comply with the requirements of state and local regulations regarding the discharge and cleanup of hazardous substances.

-
- For long-term mitigation of site disturbances at the project site, all areas not covered by structures shall be covered with hardscape (concrete, asphalt, gravel, etc.), native vegetation, man-made landscape areas (e.g., grass) and/or compacted soil with adequate drainage facilities to prevent erosion. Revegetated or landscaped areas shall provide sufficient cover to ensure that, after a 2-year period, erosion will not occur from concentrated flows (rills, gully, etc.) and sediment transport will be minimal as part of sheet flows.

Measures to minimize impacts associated with geological and soil constraints:

- The CSBMWD shall retain a qualified geologist to investigate the project. The recommendations of the geologist shall be incorporated in the design and construction of these facilities.
- The CSBMWD shall retain a qualified soils engineer to perform soil analysis and prepare compaction recommendations on the project site. The recommendations of the soil engineer shall be incorporated into the site construction activities.
- The CSBMWD shall require that design and construction of these facilities follow the recommendation of the structural engineer and/or engineering geologist and at a minimum, meet current building standards and codes including those associated with protection from anticipated seismic events in ground shaking Zone 4 of the Uniform Building Code, including liquefaction if determined to be applicable.
- The design and construction of the reservoir shall also include a method of safely conveying a sudden release of water from the reservoirs in a manner that minimizes the potential for impacts to people and property.

Mitigation measure to prevent any impacts to historical/archaeological resources:

- In the unlikely event cultural resources are encountered during construction of these facilities, activities in the immediate area of the finds shall be halted and an onsite inspection shall be performed immediately by a qualified archaeologist. This professional will be able to assess the find, determine its significance, and make recommendations for appropriate mitigation measures within the guidelines of the California Environmental Quality Act and/or the Federal National Environmental Policy Act (NEPA).

Mitigation measure to prevent impacts to paleontological resources:

- In the unlikely event paleontological resources are encountered during construction of these facilities, activities in the immediate area of the finds shall be halted and an onsite inspection shall be performed immediately by a qualified paleontologist. This professional will be able to assess the find, determine its significance, and make recommendations for appropriate mitigation measures within the guidelines of the California Environmental Quality Act and/or the Federal National Environmental Policy Act (NEPA).

Mitigation measure to minimize impacts on human remains:

- In the unlikely event that human remains should be encountered during the construction of the proposed project, all construction will cease and the City of San Bernardino Police Department shall be contacted immediately but in no circumstance more than 24-hours of the discovery.

Mitigation measures to reduce construction noise impacts:

- Construction will be limited to the daylight hours, typically 7 a.m. to 7 p.m. on weekdays, and between 9 a.m. and 6 p.m. on Saturday, and will not occur on Sundays or federal holidays, except in emergencies.
- All construction vehicles and fixed or mobile equipment will be equipped with properly operating and maintained mufflers.
- All employees that will be exposed to noise levels greater than 75 dB over an 8-hour period will be provided with adequate hearing protection devices to ensure no hearing damage will result from construction activities.
- If equipment is being used that can cause hearing damage at adjacent noise receptor locations (distance attenuation will be taken into account), portable noise barriers will be installed that are demonstrated to be adequate to reduce noise levels at receptor locations below hearing damage thresholds.

Chapter 9 PREPARERS

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Chapter 10 REFERENCES

- Bureau of Land Management, *Draft West Mojave Plan*, 2003
- California Regional Water Quality Control Board, Santa Ana River (Region 8), *Water Quality Control Plan*, 2005
- CRM TECH, *Identification and Evaluation of Historic Properties Palm No. 3 Reservoir Project, City of San Bernardino, San Bernardino County, California*, September 18, 2008
- JE Compliance Services, Inc. *Air Quality Analysis for San Bernardino Municipal Water Department's Palm #3 Reservoir Project*, September 12, 2008
- City of San Bernardino, *General Plan*, 2005
- City of San Bernardino Municipal Water Department. General Project Information.
- South Coast Air Quality Management District. 2004-2006 Air Quality Data.
- State Water Resources Control Board, current. LUFT database and Geotracker.
<http://geotracker.waterboards.ca.gov/map/>
- Tom Dodson & Associates, Site Review of the City of San Bernardino Municipal Water Department's Proposed Palm Reservoir #3 Site, June 5, 2008
- U.S. Department of Agriculture, Soil Conservation Service Soil Survey of San Bernardino County, Southwestern Part California.
- U.S. Fish and Wildlife Services, email correspondence from Nancy Ferguson dated May 20, 2008 and June 18, 2008

FIGURES

FIGURE 1 Regional Location

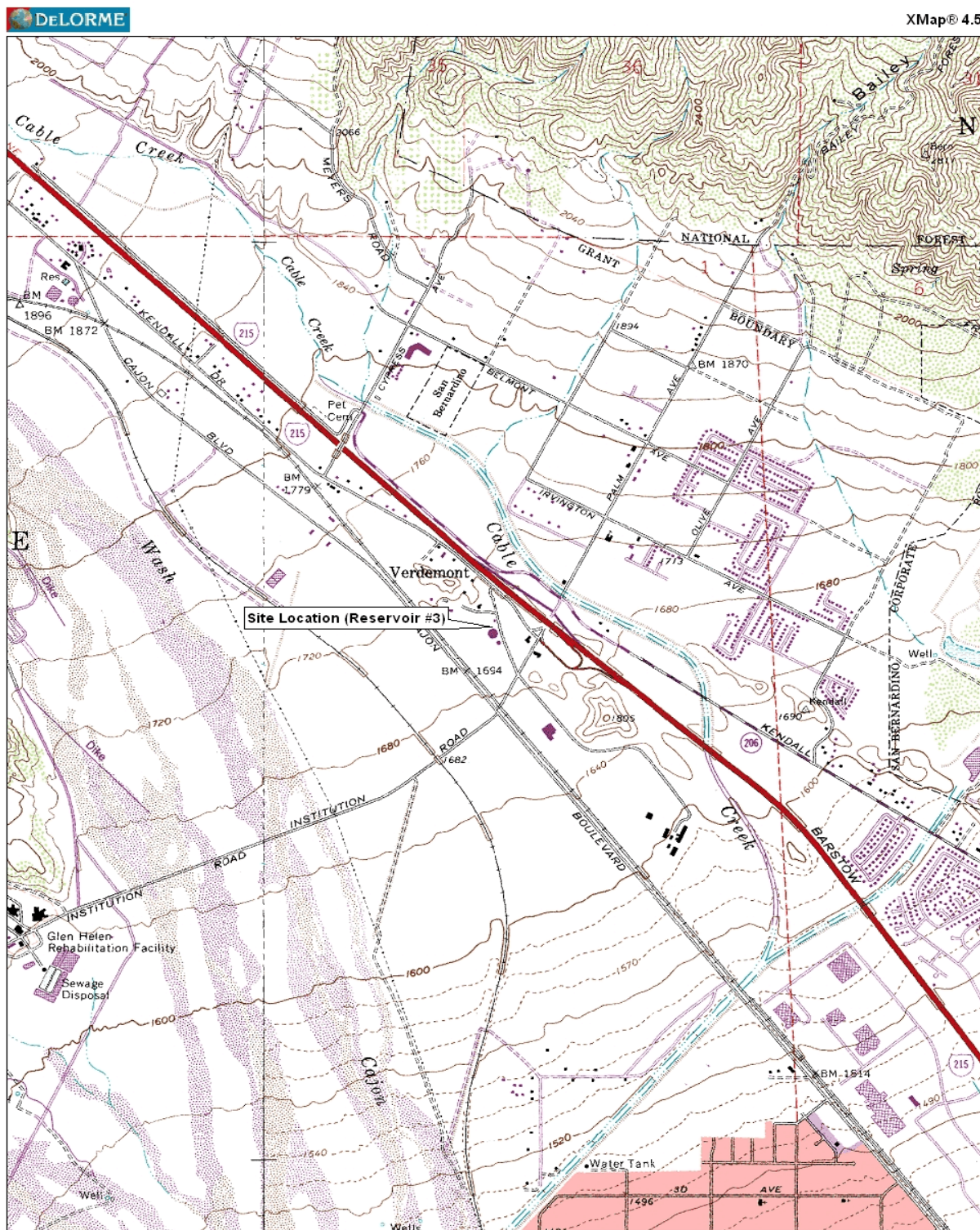


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www.delorme.com

★
MN (12.7° E)

0 2 4 6 8 10 mi
Data Zoom 9-0

FIGURE 2 Site Location



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www.delorme.com

★
MN (12.7° E)

0 800 1600 2400 3200 4000 ft
Data Zoom 13-0

FIGURE 3

Site Photographs



Proposed reservoir pad site looking north.



Proposed reservoir pad site looking northwest.

FIGURE 4 Site Photographs

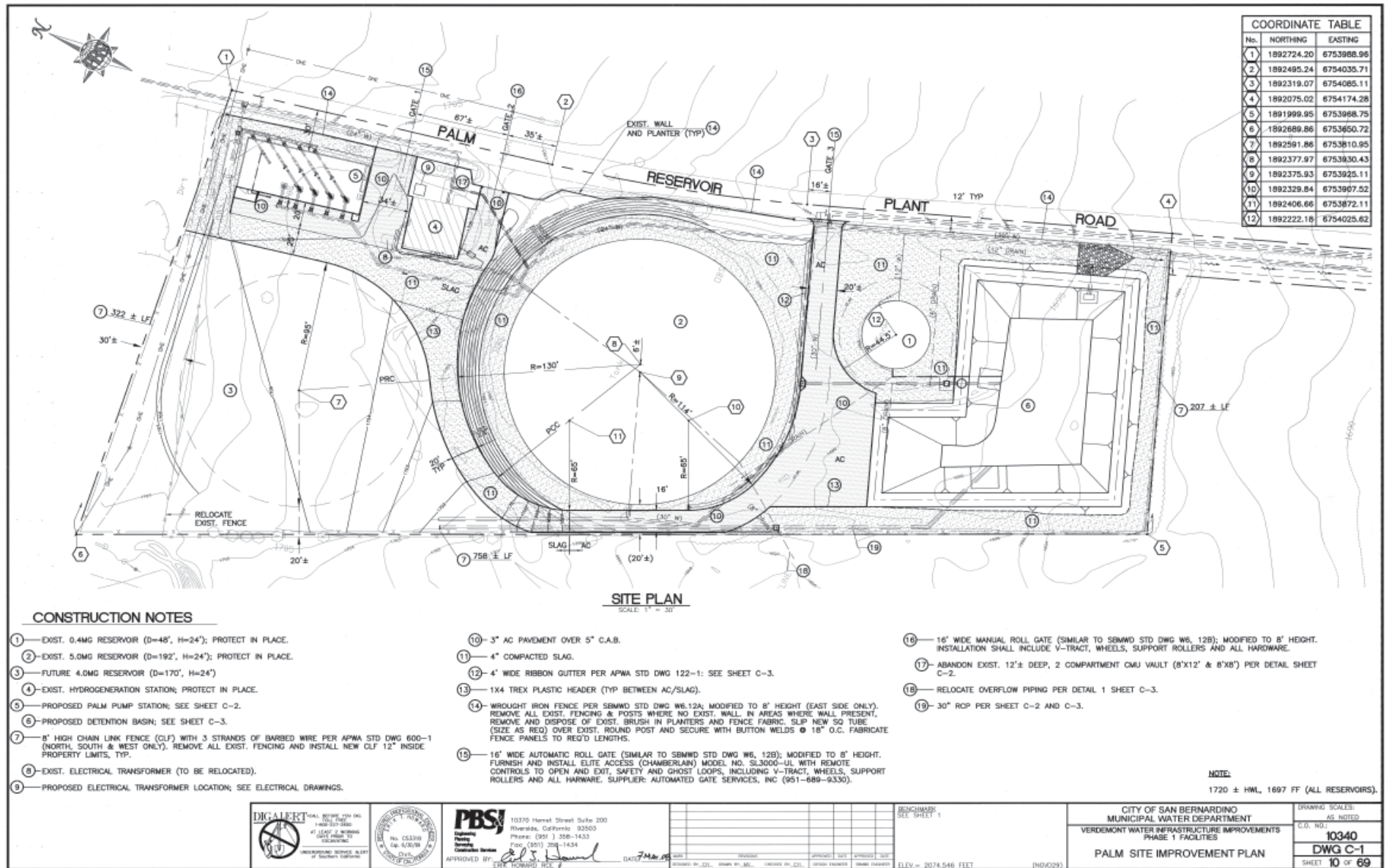


Proposed reservoir pad site looking west.



Overall view of the proposed pad site looking southeast.

FIGURE 5
Palm Site Improvement Plan



APPENDIX A

Historical / Archaeological Resources Report

IDENTIFICATION AND EVALUATION OF HISTORIC PROPERTIES

PALM NO. 3 RESERVOIR PROJECT

**City of San Bernardino
San Bernardino County, California**

For Submittal to:

San Bernardino Municipal Water Department
195 North D Street
San Bernardino, CA 92401

Prepared for:

Tom Dodson
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2150 N. Arrowhead Avenue
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Prepared by:

CRM TECH
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Bai "Tom" Tang, Principal Investigator
Michael Hogan, Principal Investigator

September 18, 2008
CRM TECH Contract No. 2269

NATIONAL ARCHAEOLOGICAL DATABASE INFORMATION

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Date: September 18, 2008

Title: Identification and Evaluation of Historic Properties: Palm No. 3
Reservoir Project, City of San Bernardino, San Bernardino County,
California

For Submittal to: San Bernardino Municipal Water Department
195 North D Street
San Bernardino, CA 92401
(909) 384-5092

Prepared for: Tom Dodson
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USGS Quadrangle: San Bernardino North, Calif., 7.5' quadrangle; T1N R5W, San
Bernardino Base Meridian; within the Rancho Muscupiabe land
grant

Project Size: Approximately 1.3 acres

Keywords: City of San Bernardino/Verdemont area, San Bernardino County;
Phase I historical/archaeological resources survey; no "historic
property" or "historical resources" found

MANAGEMENT SUMMARY

In August and September 2008, at the request of Tom Dodson and Associates, CRM TECH performed a cultural resources study on the Area of Potential Effects (APE) for the proposed Palm No. 3 Reservoir Project in the City of San Bernardino, San Bernardino County, California. The APE consists of approximately 1.3 acres of land near the intersection of Industrial Parkway and Palm Avenue, in a portion of the Rancho Muscupiabe land grant lying within T1N R5W, San Bernardino Base Meridian. The study is a part of the environmental review process for the proposed project. The San Bernardino Municipal Water Department (SBMWD), as the lead agency for the project, required the study pursuant to the California Environmental Quality Act (CEQA). In anticipation of federal project review by the U.S. Environmental Protection Agency (EPA), this study was also performed in compliance with Section 106 of the National Historic Preservation Act.

The purpose of the study is to provide the SBMWD, the EPA, and any other responsible public agency or agencies with the necessary information and analysis to determine whether the proposed undertaking would have an effect on any "historic properties," as defined by 36 CFR 800.16(l), or "historical resources," as defined by Title 14 CCR §15064.5(a)(1)-(3), that may exist in or near the APE. In order to identify such properties, CRM TECH conducted a historical/archaeological resources records search, pursued historical and geomorphologic research on the APE, contacted Native American representatives, and carried out an intensive-level field survey.

Throughout the course of the study, no "historic properties" or "historical resources" were encountered within or adjacent to the APE. In addition, the subsurface sediments within the APE appear to be relatively in low sensitivity for potentially significant archaeological deposits. Therefore, pursuant to 36 CFR 800.4(d)(1) and Calif. PRC §21084.1, CRM TECH recommends to the SBMWD, the EPA, and other responsible public agency or agencies a finding that *no historic properties or historical resources will be affected by the proposed undertaking*. No further cultural resources investigation is recommended for the undertaking unless project plans undergo such changes as to include areas not covered by this study. However, if buried cultural materials are encountered during construction, all work in that area should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

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INTRODUCTION

In August and September 2008, at the request of Tom Dodson and Associates, CRM TECH performed a cultural resources study on the Area of Potential Effects (APE) for the proposed Palm No. 3 Reservoir Project in the City of San Bernardino, San Bernardino County, California (Fig. 1). The APE consists of approximately 1.3 acres of land near the intersection of Industrial Parkway and Palm Avenue, in a portion of the Rancho Muscupiabe land grant lying within T1N R5W, San Bernardino Base Meridian (Fig. 2). The study is a part of the environmental review process for the proposed project. The San Bernardino Municipal Water Department (SBMWD), as the lead agency for the project, required the study pursuant to the California Environmental Quality Act (CEQA). In anticipation of federal project review by the U.S. Environmental Protection Agency (EPA), this study was also performed in compliance with Section 106 of the National Historic Preservation Act.

The purpose of the study is to provide the SBMWD, the EPA, and any other responsible public agency or agencies with the necessary information and analysis to determine whether the proposed undertaking would have an effect on any "historic properties," as defined by 36 CFR 800.16(l), or "historical resources," as defined by Title 14 CCR §15064.5(a)(1)-(3), that may exist in or near the APE. In order to identify such properties, CRM TECH conducted a historical / archaeological resources records search, pursued historical and geomorphologic research on the APE, contacted Native American representatives, and carried out an intensive-level field survey. The following report is a complete account of the methods and results of the various avenues of research, and the final conclusion of the study.

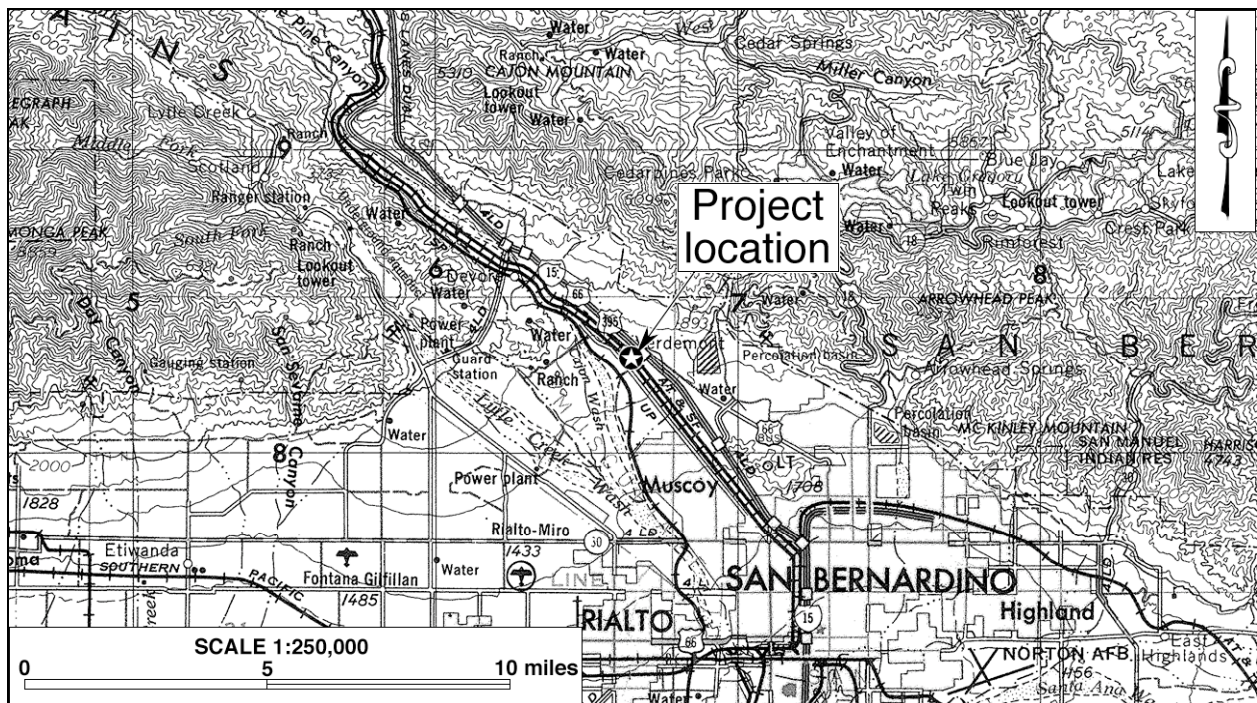


Figure 1. Project vicinity. (Based on USGS San Bernardino, Calif., 1:250,000 quadrangle [USGS 1969])

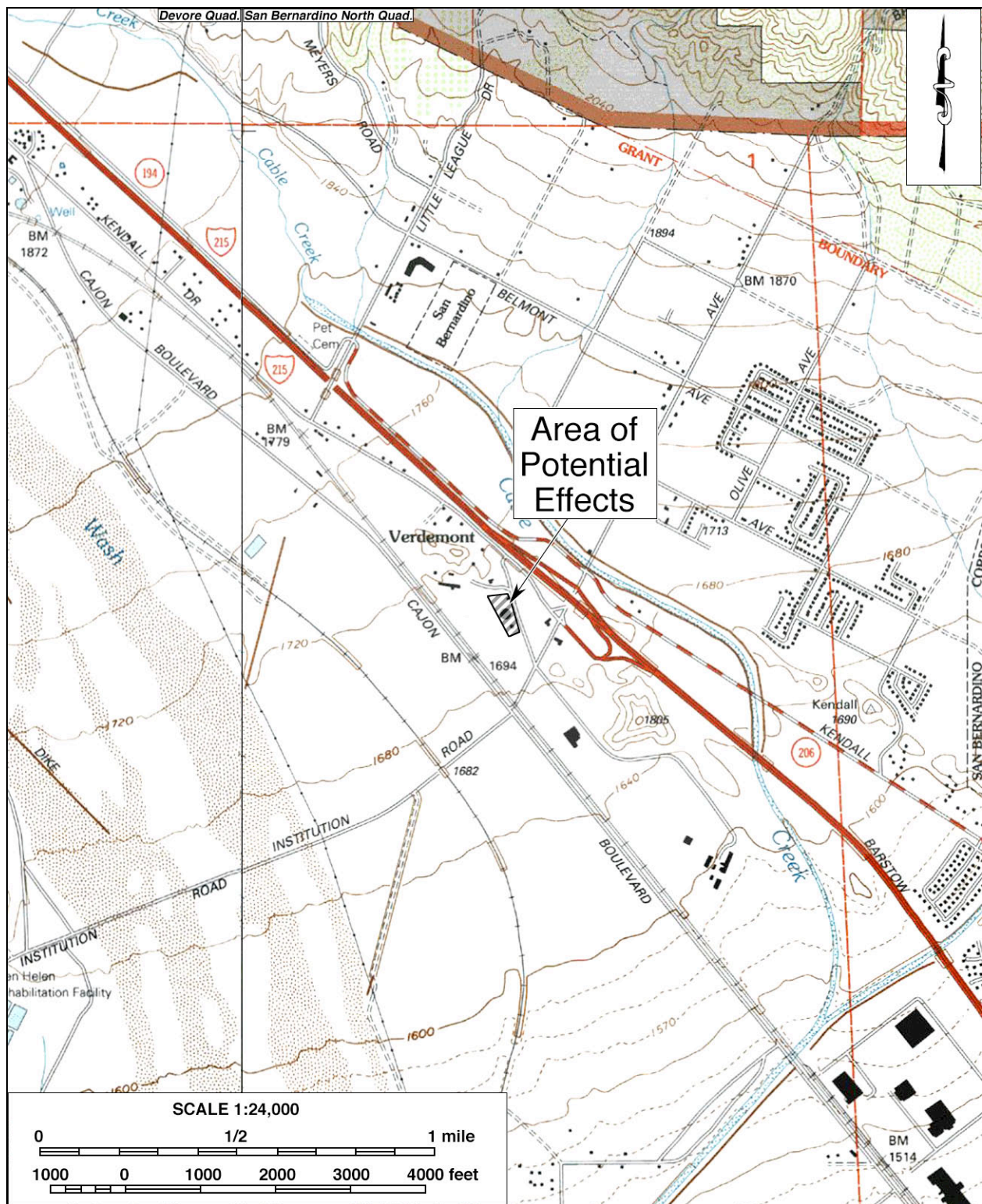


Figure 2. Area of Potential Effects. (Based on USGS Devore and San Bernardino North, Calif., 1:24,000 quadrangles [USGS 1988; 1996])

AREA OF POTENTIAL EFFECTS

According to 36 CFR 800.2(d), the Area of Potential Effects is "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist." For the current undertaking, the APE is delineated to encompass the maximum extent of ground disturbances required for the construction of an aboveground water reservoir, a detention basin, and a pump station, including construction staging areas. Since there are no potentially historic buildings or structures on adjacent land that may receive visual, atmospheric, or other indirect effects, the APE is established on the basis of direct project impacts only.

SETTING

CURRENT NATURAL SETTING

The APE is situated on the northern rim of the San Bernardino Valley, a broad inland valley extending from the southern base of the San Bernardino and San Gabriel Mountains. The average maximum temperature in July reaches nearly 100°F in this region, and the average minimum temperature in January dips to around 30°F. Annual rainfall is typically less than 20 inches.

The APE is bounded by Industrial Parkway on the east and by open, undeveloped land on the north, south, and west. The entire surface of the APE has been cleared and leveled, and very little vegetation remains (Fig. 3). Currently, a large existing water reservoir is located in the middle of the APE, dividing it into northern and southern portions. Soils in the southern portion are of light tan fine gravels to coarse sand with small rocks, while the northern portion appears to be more disturbed (Fig. 3), with surface soils of recently disked light brown silts with some small rocks scattered throughout.



Figure 3. Disturbed ground surface in the APE. (Photo taken on August 28, 2008; view to the west)

GEOLOGICAL SETTING

Clarke (1978-1979:Fig. 2) mapped the surface geology of the APE as **Qf**, or alluvium on terraces. Morton and Miller (2003) mapped the surface geology as **Qw2**, defined as "very young wash deposits, Unit 2 (late Holocene)." Dibblee (2004) mapped the surface geology as **Qa**, or "alluvial gravel and sand of stream channels," also of Holocene age. Woodruff and Brock (1980:Map Sheet 3) show the surface soils at the APE to be **TvC**, or Tujunga gravelly loamy sand, 0 to 9 percent slopes (*ibid.*:26). This soil develops on long, broad, smooth alluvial fans (*ibid.*). The orthophotograph on which the soils are plotted was compiled from aerial photographs taken in 1975, which shows the APE as open, undeveloped land in what appears to be a former wash area.

CULTURAL SETTING

Prehistoric Context

The present-day San Bernardino area is a part of the homeland of the Serrano Indians, whose traditional territory is centered at the San Bernardino Mountains, but also includes the southern rim of the Mojave Desert, extending from present-day Victorville eastward to Twentynine Palms. The name "Serrano" was derived from a Spanish term meaning "mountaineer" or "highlander." The basic written sources on Serrano culture are Kroeber (1925), Strong (1929), and Bean and Smith (1978). The following ethnographic discussion of the Serrano people is based on these sources.

Before European contact, the Serranos were primarily gatherers and hunters, and occasional fishers, who settled mostly where flowing water emerged from the mountains. They were loosely organized into exogamous clans, which were led by hereditary heads, and the clans in turn were affiliated with one of two exogamous moieties. The exact nature of the clans, their structure, function, and number are not known, except that each clan was the largest autonomous political and landholding unit, the core of which was the patrilineage. There was no pan-tribal political union among the clans.

Although contact with Europeans may have occurred as early as 1771 or 1772, Spanish influence on Serrano lifeways was negligible until the 1810s, when a mission *asistencia* was established on the edge of Serrano territory. Between then and the end of the mission era in 1834, most of the Serranos in the San Bernardino Mountains were removed to the nearby missions. At present, most Serrano descendants are found on the San Manuel and the Morongo Indian Reservations, where they participate in ceremonial and political affairs with other Native American groups on an inter-reservation basis.

Historic Context

The City of San Bernardino, one of the oldest communities in the Inland Empire, traces its roots to the Spanish period in California history. The name "San Bernardino" was bestowed on the area around the city in 1819, when the *asistencia* and an associated mission rancho were established in the vicinity under that name. In 1842, during secularization of the mission system, the Mexican authorities in Alta California granted Rancho San Bernardino, along with several adjacent former mission ranchos, to members of a

prominent Los Angeles family, the Lugos. An adobe house built by one of the grantees at the site of today's county courthouse became the earliest non-Indian settlement in San Bernardino.

Closer to the project location, the Rancho Muscupiabe land grant was awarded in 1843 to Michael C. White, a naturalized Englishman, but was abandoned a few months later. The Lugos, on the other hand, were engaged in cattle raising for nine years on their vast domain before selling the entire rancho in 1851 to a group of Mormon settlers who had been dispatched by church leaders in Utah to found a Mormon colony in southern California. Soon after the purchase, the Mormons established a fortified settlement around the Lugo adobe, thus opening the history of the town of San Bernardino. Two years later, the budding town was named county seat for the newly created San Bernardino County, and the next year, in 1854, the City of San Bernardino was incorporated.

Development of the community suffered a devastating setback in 1857 when many of its Mormon founders were recalled to Utah. As a result, San Bernardino lost half its population, and was consequently disincorporated. By the 1880s, however, spurred by the completion of the Santa Fe Railroad in 1885, the rise of the profitable citrus industry, and a general land boom that swept through much of southern California, San Bernardino gradually recovered, reincorporated in 1886, and began a period of rapid growth that lasted well into the 20th century.

The original townsite of San Bernardino, as recorded in 1854, was bounded by present-day Tenth Street, Sierra Way, Rialto Avenue, and I Street. Over the course of the 20th century, especially during the post-WWII boom, the urbanized area of the city expanded greatly, reaching the project vicinity by the 1960s-1970s. The current APE, located on the northern boundary of the city and approximately eight miles from city center, lies adjacent to the Verdemont neighborhood of San Bernardino, which was developed in the years since then.

RESEARCH METHODS

RECORDS SEARCH

On August 22, 2008, CRM TECH archaeologist Nina Gallardo (see Appendix 1 for qualifications) completed the records search at the Archaeological Information Center (AIC), located at the San Bernardino County Museum, Redlands. The AIC is the State of California's official cultural resource records repository for the County of San Bernardino, and a part of the California Historical Resource Information System, established and maintained under the auspices of the Office of Historic Preservation.

During the records search, Gallardo examined maps and records on file at the AIC for previously identified cultural resources within or near the APE, and existing cultural resources reports pertaining to the project vicinity. Previously identified cultural resources include properties designated as California Historical Landmarks, Points of Historical Interest, or San Bernardino County Landmarks, as well as those listed in the National Register of Historic Places, the California Register of Historical Resources, or the California Historical Resources Inventory.

For the current study, the scope of the records search included the standard one-mile radius from the perimeters of the APE and an expanded five-mile radius to identify cultural resources in similar geomorphologic contexts as the APE. The purpose of the expanded records search is to assess the sensitivity of the APE for cultural resources and help determine the potential of encountering significant subsurface cultural deposits during earth-moving activities associated with the undertaking.

GEOMORPHOLOGIC ANALYSIS

As part of the research procedures, CRM TECH geologist Harry M. Quinn, California Registered Geologist #3477 (see App. 1 for qualifications), pursued geomorphologic analysis to assess the APE's potential for the deposition and preservation of subsurface cultural remains from the prehistoric period, which cannot be detected through standard surface survey. Sources consulted for this purpose included topographic and geologic maps published by the U.S. Geological Survey (USGS) and soils reports in the vicinity of the APE. Findings from these sources were used to develop a geomorphologic history of the APE and address geoarchaeological sensitivity of the vertical APE.

HISTORICAL BACKGROUND RESEARCH

Bai "Tom" Tang, CRM TECH principal investigator/historian (see App. 1 for qualifications), conducted the historical background research on the basis of published literature in local history and historic maps of the Verdemon area. Among maps consulted for this study were the U.S. General Land Office's (GLO) land survey plat map dated 1898 and the U.S. Geological Survey's (USGS) topographic maps dated 1901, 1941, and 1954. These maps are collected at the Science Library of the University of California, Riverside, and the California Desert District of the U.S. Bureau of Land Management, located in Moreno Valley.

NATIVE AMERICAN PARTICIPATION

On August 14, 2008, CRM TECH sent a written request to the State of California's Native American Heritage Commission in Sacramento for a records search in the commission's sacred lands file. Upon the commission's recommendations, CRM TECH further contacted eight Native American representatives or organizations in the region in writing and by telephone between August 20 and September 8 to solicit local Native American input regarding any possible cultural resources concerns over the proposed undertaking. The correspondences between CRM TECH and the Native American representatives are attached to this report in Appendix 2.

FIELD SURVEY

On August 28, 2008, CRM TECH principal investigator/archaeologist Michael Hogan (see App. 1 for qualification) carried out the intensive-level, on-foot survey of the APE. The survey was completed by walking north-south parallel transects spaced 10 meters (approx. 33 feet) apart. In this way, the entire APE was inspected systematically for any evidence of human activities dating to the prehistoric or historic periods (i.e., 50 years ago or older). Ground visibility was excellent (100%) in most of the APE.

RESULTS AND FINDINGS

RECORDS SEARCH

According to records on file at the AIC, a small portion of the APE was evidently covered by a previously completed cultural resources study (Fig. 4), but the APE as a whole had not been surveyed systematically prior to this study. Outside the project boundaries but within a one-mile radius, AIC records indicate more than 25 previous cultural resources studies covering various tracts of land and linear features (Fig. 4). As a result of these and other similar studies in the vicinity, seven archaeological sites and one isolate—i.e., a locality with less than three artifacts—were previously identified within the one-mile radius, along with one "pending" site (see App. 3 for locations).

As listed below in Table 1, all of the previously identified cultural resources in the project vicinity dated to the historic period, and no prehistoric—i.e., Native American cultural remains were found. None of the previously identified cultural resources was located in the immediate vicinity of the project area, and thus none of them requires further consideration during this study.

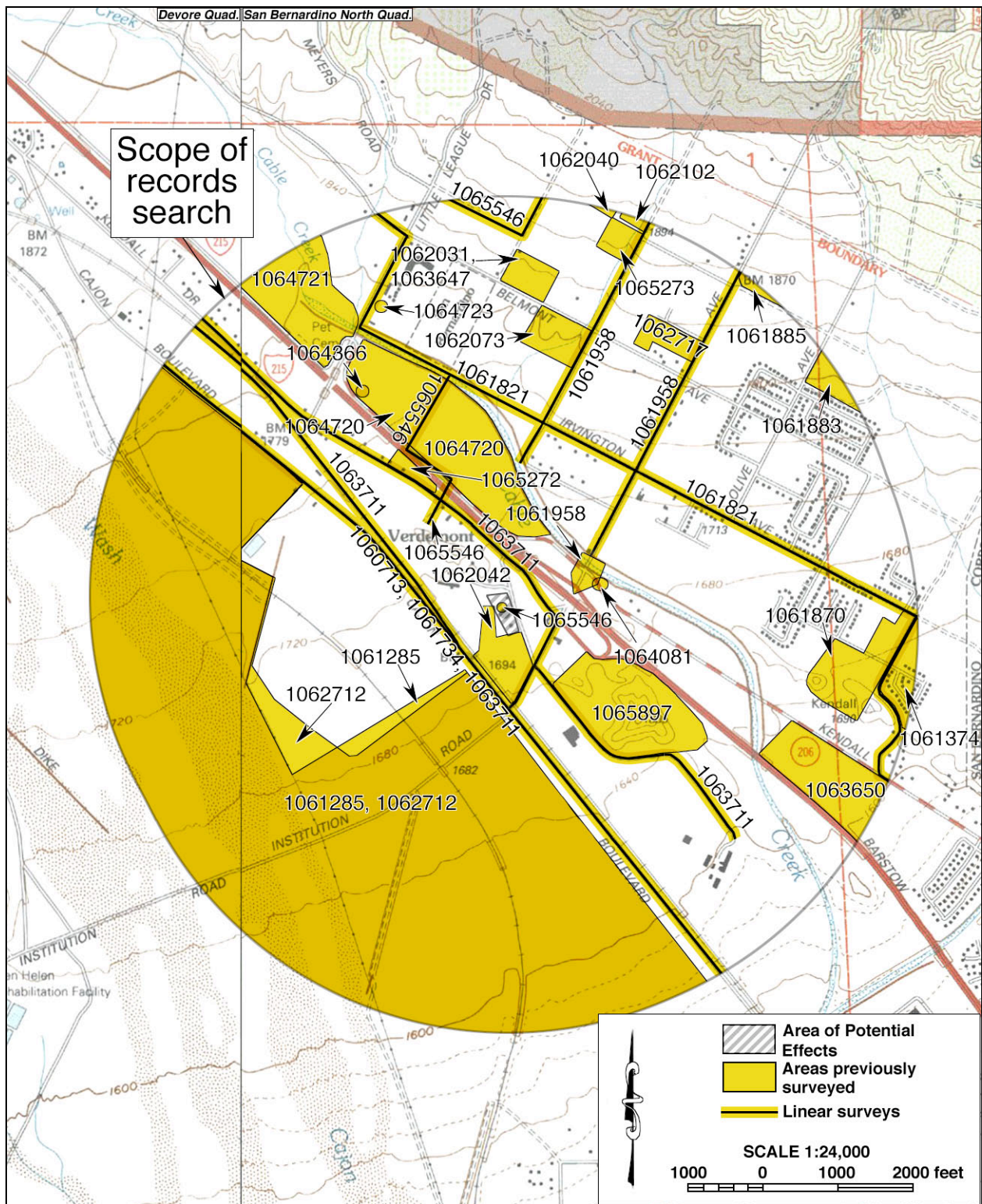
Table 1. Previously Identified Cultural Resources in the Vicinity		
Site No.	Recorded by/Date	Description
36-002910*	Various 1986-2004	Segments of Route 66/ National Old Trails Highway
36-006793*	Lerch 1990; McKenna 1992	Atchison, Topeka, and Santa Fe Railroad, ca. 1885
36-010221	Shepard and Lown 2000	Concrete building foundations and associated trash scatter, early 20th century
36-013612	Jurich 2007	Concrete foundation
36-013613	Jurich 2007	Concrete foundation and slab
36-013614	Jurich 2007	Concrete pad, dirt road, asphalt, and rusted metal
36-014177	DeMunck 1989	Irrigation reservoir, ca. 1935
36-060940	Shepard and Lown 2000	Amethyst bottle fragment, ca. 1900
1071-25H**	DeMunck 1989	Five concrete foundations of a single-family residence, ca. 1935

* Eligible for listing in the National Register of Historic Places.

** "Pending" site.

The expanded records search, as mentioned above, covered the area within a five-mile radius of the APE for the purpose of identifying any prehistoric archaeological sites situated in the same or a similar geomorphologic context as the APE. The results indicate that only three prehistoric archaeological sites or isolates were previously recorded on the valley floor while, in contrast, numerous prehistoric sites have been recorded along the foothills and on elevated terraces surrounding the APE, including the rugged terrains of nearby mountains.

Overall, the locations and types of prehistoric sites identified in the expanded records search appear to support existing prehistoric hunter-gatherer settlement-subsistence models for Inland California, which suggest longer-term residential settlement was more likely to occur on elevated terraces, hills, and finger ridges near permanent or reliable sources of water, while the valley floor was more often utilized in resource procurement efforts, travel, and opportunistic camping.



GEOMORPHOLOGIC ANALYSIS

The results of the geomorphologic research reveal the alluvial sediments present within the APE are Holocene or older in age, and are not within any of the recently active stream channels. The location lies between outcrops of ps, or Pelona schist of Mesozoic age. Because of the site location, the alluvial sediments are likely thin, reducing the chance of subsurface artifact deposits. The region appears to lack permanent water sources, and thus it is unlikely for any large habitation sites to be found in the vicinity. Based on the information available, the project site is considered to have a low potential for buried prehistoric archaeological resources.

HISTORICAL BACKGROUND RESEARCH

Historical sources consulted for this study indicate that the APE apparently remained unsettled and undeveloped throughout the historic period (Figs. 5-7). In the 1890s, a number of crisscrossing roads, a few scattered buildings, and the Santa Fe Railway were present in the surrounding area, but the APE itself remained vacant (Fig. 5). The earliest buildings near the APE were first noted in the 1950s, but none of them was located within or adjacent to the APE (Figs. 6, 7). At that time, most of the surrounding area evidently remained undeveloped except for agricultural purposes, most notably as citrus groves (Fig. 7), and the present-day landscape of the Verdernont area, dominated by single-family residential tracts, did not come into being until well after the 1960s.

NATIVE AMERICAN PARTICIPATION

In response to CRM TECH's inquiry, the Native American Heritage Commission reports that the sacred lands record search identified no Native American cultural resources in the vicinity of the APE. However, noting that "the absence of specific site information in the Sacred Lands File does not guarantee the absence of cultural resources in any project area," the commission recommends that local Native American groups be contacted for further information, and provided a list of potential contacts in the region (see App. 2).

Upon receiving the commission's response, CRM TECH initiated correspondence with all seven individuals on the referral list and the organizations they represent (see App. 2). In addition, John Gomez, Jr., Cultural Resources Coordinator for the Ramona Band of Cahuilla Indians, was also contacted. As of this date, Mike Contreras, Cultural Resources Project Manager for the Morongo Band of Mission Indians, Anthony

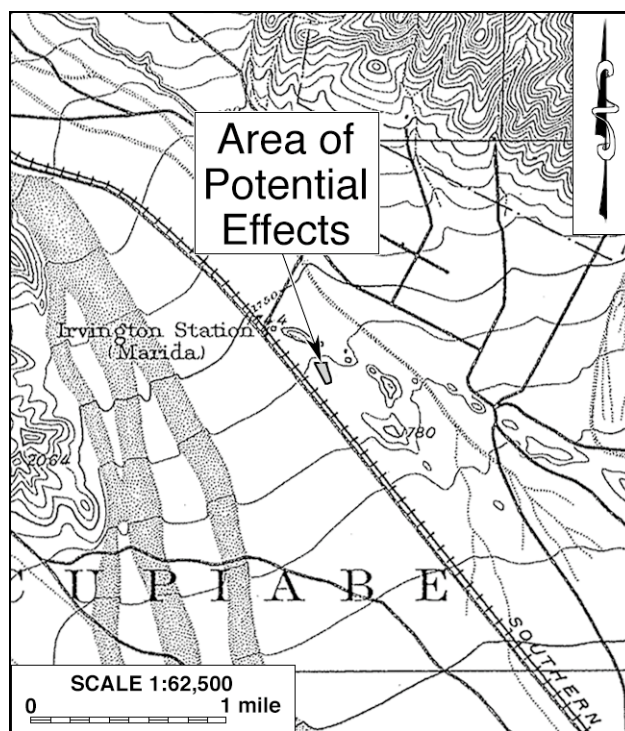


Figure 5. The APE and vicinity in 1893-1894.
(Source: USGS 1901)

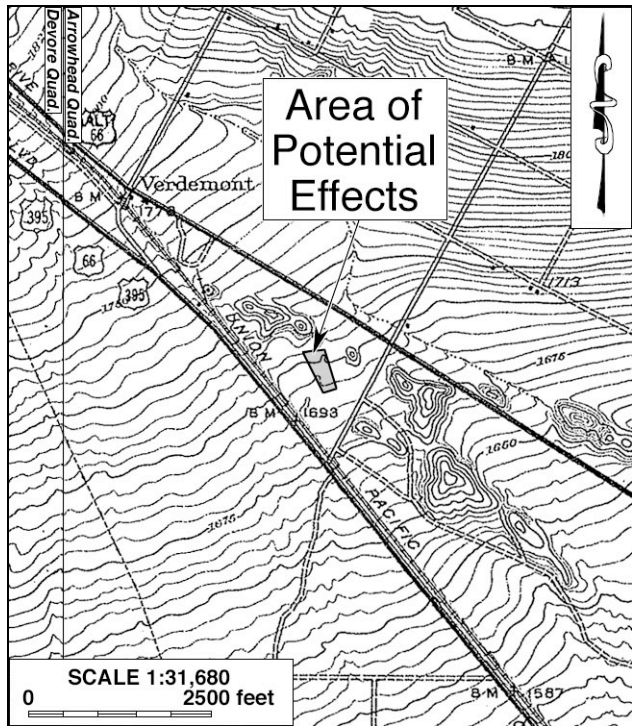


Figure 6. The APE and vicinity in 1936. (Source: USGS 1941a; 1941b)

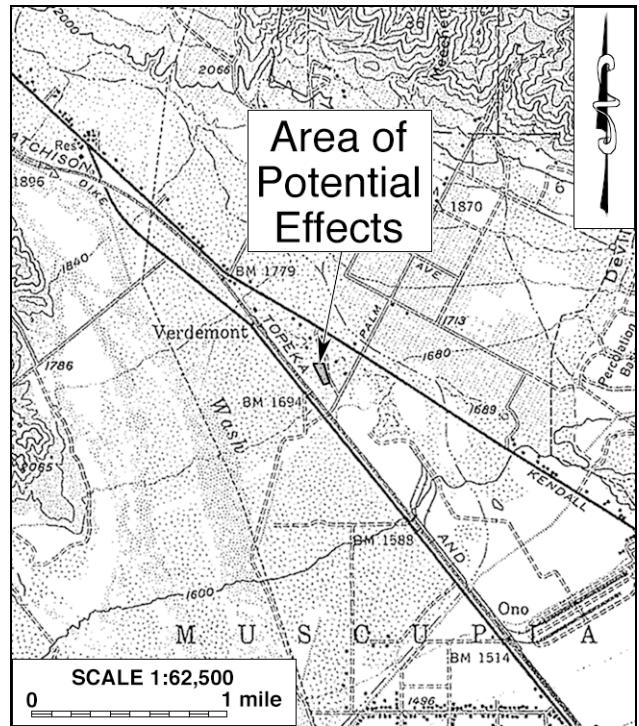


Figure 7. The APE and vicinity in 1952-1954. (Source: USGS 1954)

Morales, Chairman of the Gabrieleno/Tongva San Gabriel Band of Mission Indians, and Goldie Walker of the Serrano Nation of Indians have responded to the inquiries by telephone on September 3, 2008 (see App. 2).

Mr. Contreras stated that the Morongo Band wishes to defer to other tribes in the area for issues concerning the proposed undertaking. Ms. Walker was concerned about Native American human remains or artifacts being unearthed during the proposed undertaking, and requested to be notified in the event of such discoveries. Both Ms. Walker and Mr. Morales requested that proper procedures be followed regarding such discoveries. In addition, Mr. Morales requested to be informed of the progress of the undertaking.

FIELD SURVEY

The intensive-level field survey produced completely negative results for potential cultural resources. The entire APE was closely inspected for any evidence of human activities dating to the prehistoric or historic periods, but none was found. The entire surface of the APE has been leveled and cleared, with pipes covering the southwestern corner of the property. The existing reservoir in the APE is clearly modern in origin, and demonstrates no special characters in design and construction.

DISCUSSION

The purpose of this study is to identify any "historic properties" or "historical resources" that may exist within or adjacent to the APE, and assess the undertaking's potential to

affect such properties, if any. "Historic properties," as defined by the Advisory Council on Historic Preservation, include "prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior" (36 CFR 800.16(l)). The eligibility for inclusion in the National Register is determined by applying the following criteria, developed by the National Park Service as per provision of the National Historic Preservation Act:

- The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and
- (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
 - (b) that are associated with the lives of persons significant in our past; or
 - (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
 - (d) that have yielded, or may be likely to yield, information important in prehistory or history. (36 CFR 60.4)

For CEQA-compliance considerations, the State of California's Public Resources Code (PRC) establishes the definitions and criteria for "historical resources," which require similar protection to what NHPA Section 106 mandates for historic properties. "Historical resources," according to PRC §5020.1(j), "includes, but is not limited to, any object, building, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California."

More specifically, CEQA guidelines state that the term "historical resources" applies to any such resources listed in or determined to be eligible for listing in the California Register of Historical Resources, included in a local register of historical resources, or determined to be historically significant by the Lead Agency (Title 14 CCR §15064.5(a)(1)-(3)). Regarding the proper criteria of historical significance, CEQA guidelines mandate that "a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing on the California Register of Historical Resources" (Title 14 CCR §15064.5(a)(3)). A resource may be listed in the California Register if it meets any of the following criteria:

- (1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- (2) Is associated with the lives of persons important in our past.
- (3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
- (4) Has yielded, or may be likely to yield, information important in prehistory or history. (PRC §5024.1(c))

As discussed above, all research procedures conducted during this study have produced negative results, and no buildings, structures, objects, sites, features, or artifacts more than

50 years of age were encountered throughout the course of the study. In addition, the subsurface sediments within the APE appear to be relatively in low sensitivity for potentially significant archaeological deposits. Based on these findings, and in light of the criteria listed above, the present report concludes that *no "historic properties" or "historical resources" exist within or adjacent to the Area of Potential Effects.*

CONCLUSION AND RECOMMENDATIONS

Section 106 of the National Historic Preservation Act mandates that federal agencies take into account the effects of their undertakings on historic properties and seek ways to avoid, minimize, or mitigate any adverse effects on such properties (36 CFR 800.1(a)). Similarly, CEQA establishes that "a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment" (PRC §21084.1). "Substantial adverse change," according to PRC §5020.1(q), "means demolition, destruction, relocation, or alteration such that the significance of an historical resource would be impaired."

Since no "historic properties" or "historical resources" have been identified within the APE during this study, CRM TECH presents to the SBMWD, the EPA, and other responsible public agency or agencies the following recommendations regarding the proposed undertaking:

- No "historic properties" or "historical resources" are present within or adjacent to the APE, and thus no "historic properties" or "historical resources" will be affected by the undertaking as currently proposed.
- No further cultural resources investigation is necessary for the proposed undertaking unless project plans undergo such changes as to include areas not covered by this study.
- If buried cultural materials are discovered during grading and/or other earth-moving operations associated with the undertaking, all work in that area should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

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1941b Map: Devore, Calif. (1:31,680); surveyed in 1936.
1954 Map: San Bernardino, Calif. (15', 1:62,500); aerial photos taken in 1952, field-checked in 1953-1954.
1969 Map: San Bernardino, Calif. (1:250,000); 1958 edition revised.
1988 Map: Devore, Calif. (7.5', 1:24,000); 1966 edition photorevised in 1985.
1996 Map: San Bernardino North, Calif. (7.5', 1:24,000); photorevised in 1994.
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1980 *Soil Survey of San Bernardino County, Southwest Part, California*. U.S. Department of Agriculture, Soil Conservation Service, Washington, D.C.

APPENDIX 1

PERSONNEL QUALIFICATIONS

PRINCIPAL INVESTIGATOR/HISTORIAN
Bai "Tom" Tang, M.A.

Education

- 1988-1993 Graduate Program in Public History / Historic Preservation, UC Riverside.
1987 M.A., American History, Yale University, New Haven, Connecticut.
1982 B.A., History, Northwestern University, Xi'an, China.
- 2000 "Introduction to Section 106 Review," presented by the Advisory Council on Historic Preservation and the University of Nevada, Reno.
1994 "Assessing the Significance of Historic Archaeological Sites," presented by the Historic Preservation Program, University of Nevada, Reno.

Professional Experience

- 2002- Principal Investigator, CRM TECH, Riverside/Colton, California.
1993-2002 Project Historian/ Architectural Historian, CRM TECH, Riverside, California.
1993-1997 Project Historian, Greenwood and Associates, Pacific Palisades, California.
1991-1993 Project Historian, Archaeological Research Unit, UC Riverside.
1990 Intern Researcher, California State Office of Historic Preservation, Sacramento.
1990-1992 Teaching Assistant, History of Modern World, UC Riverside.
1988-1993 Research Assistant, American Social History, UC Riverside.
1985-1988 Research Assistant, Modern Chinese History, Yale University.
1985-1986 Teaching Assistant, Modern Chinese History, Yale University.
1982-1985 Lecturer, History, Xi'an Foreign Languages Institute, Xi'an, China.

Honors and Awards

- 1988-1990 University of California Graduate Fellowship, UC Riverside.
1985-1987 Yale University Fellowship, Yale University Graduate School.
1980, 1981 President's Honor List, Northwestern University, Xi'an, China.

Cultural Resources Management Reports

Preliminary Analyses and Recommendations Regarding California's Cultural Resources Inventory System (With Special Reference to Condition 14 of NPS 1990 Program Review Report). California State Office of Historic Preservation working paper, Sacramento, September 1990.

Numerous cultural resources management reports with the Archaeological Research Unit, Greenwood and Associates, and CRM TECH, since October 1991.

Membership

California Preservation Foundation.

PRINCIPAL INVESTIGATOR/ARCHAEOLOGIST
Michael Hogan, Ph.D., RPA*

Education

- 1991 Ph.D., Anthropology, University of California, Riverside.
1981 B.S., Anthropology, University of California, Riverside; with honors.
1980-1981 Education Abroad Program, Lima, Peru.
- 2002 Section 106—National Historic Preservation Act: Federal Law at the Local Level. UCLA Extension Course #888.
2002 "Recognizing Historic Artifacts," workshop presented by Richard Norwood, Historical Archaeologist.
2002 "Wending Your Way through the Regulatory Maze," symposium presented by the Association of Environmental Professionals.
1992 "Southern California Ceramics Workshop," presented by Jerry Schaefer.
1992 "Historic Artifact Workshop," presented by Anne Duffield-Stoll.

Professional Experience

- 2002- Principal Investigator, CRM TECH, Riverside/Colton, California.
1999-2002 Project Archaeologist/Field Director, CRM TECH, Riverside.
1996-1998 Project Director and Ethnographer, Statistical Research, Inc., Redlands.
1992-1998 Assistant Research Anthropologist, University of California, Riverside
1992-1995 Project Director, Archaeological Research Unit, U. C. Riverside.
1993-1994 Adjunct Professor, Riverside Community College, Mt. San Jacinto College, U.C. Riverside, Chapman University, and San Bernardino Valley College.
1991-1992 Crew Chief, Archaeological Research Unit, U. C. Riverside.
1984-1998 Archaeological Technician, Field Director, and Project Director for various southern California cultural resources management firms.

Research Interests

Cultural Resource Management, Southern Californian Archaeology, Settlement and Exchange Patterns, Specialization and Stratification, Culture Change, Native American Culture, Cultural Diversity.

Cultural Resources Management Reports

Author and co-author of, contributor to, and principal investigator for numerous cultural resources management study reports since 1986.

Memberships

* Register of Professional Archaeologists.
Society for American Archaeology.
Society for California Archaeology.
Pacific Coast Archaeological Society.
Coachella Valley Archaeological Society.

PROJECT ARCHAEOLOGIST/REPORT WRITER
Deirdre Encarnación, M.A.

Education

2003 M.A., Anthropology, San Diego State University, California.
2000 B.A., Anthropology, minor in Biology, with honors; San Diego State University, California.
1993 A.A., Communications, Nassau Community College, Garden City, N.Y.

2001 Archaeological Field School, San Diego State University.
2000 Archaeological Field School, San Diego State University.

Professional Experience

2004- Project Archaeologist/Report Writer, CRM TECH, Riverside/Colton, California.
2001-2003 Part-time Lecturer, San Diego State University, California.
2001 Research Assistant for Dr. Lynn Gamble, San Diego State University.
2001 Archaeological Collection Catalog, SDSU Foundation.

PROJECT ARCHAEOLOGIST
Nina Gallardo, B.A.

Education

2004 B.A., Anthropology/Law and Society, University of California, Riverside.

Professional Experience

2004- Project Archaeologist, CRM TECH, Riverside/Colton, California.
• Surveys, excavations, mapping, and records searches.

Honors and Awards

2000-2002 Dean's Honors List, University of California, Riverside.

PROJECT GEOLOGIST

Harry M. Quinn, M.S.

Education

1968 M.S., Geology, University of Southern California, Los Angeles, California.
1964 B. S, Geology, Long Beach State College, Long Beach.
1962 A.A., Los Angeles Harbor College, Wilmington North Palm Springs, California.

- Graduate work oriented toward invertebrate paleontology; M.S. thesis completed as a stratigraphic paleontology project on the Precambrian and Lower Cambrian rocks of Eastern California.

Professional Experience

2000- Project Paleontologist, CRM TECH, Riverside/ Colton, California.
1998- Project Archaeologist, CRM TECH, Riverside/ Colton, California.
1992-1998 Independent Geological/ Geoarchaeological/ Environmental Consultant, Pinyon Pines, California.
1994-1996 Environmental Geologist, E.C E.S., Inc, Redlands, California.
1988-1992 Project Geologist/ Director of Environmental Services, STE, San Bernardino, California.
1987-1988 Senior Geologist, Jirsa Environmental Services, Norco, California.
1986 Consulting Petroleum Geologist, LOCO Exploration, Inc. Aurora, Colorado.
1978-1986 Senior Exploration Geologist, Tenneco Oil E & P, Englewood, Colorado.
1965-1978 Exploration and Development Geologist, Texaco, Inc., Los Angeles, California.

Previous Work Experience in Paleontology

1969-1973 Attended Texaco company-wide seminars designed to acquaint all paleontological laboratories with the capability of one another and the procedures of mutual assistance in solving correlation and paleo-environmental reconstruction problems.
1967-1968 Attended Texaco seminars on Carboniferous coral zonation techniques and Carboniferous smaller foraminifera zonation techniques for Alaska and Nevada.
1966-1972, 1974, 1975 Conducted stratigraphic section measuring and field paleontological identification in Alaska for stratigraphic controls. Pursued more detailed fossil identification in the paleontological laboratory to establish closer stratigraphic controls, mainly with Paleozoic and Mesozoic rocks and some Tertiary rocks, including both megafossil and microfossil identification, as well as fossil plant identification.
1965 Conducted stratigraphic section measuring and field paleontological identification in Nevada for stratigraphic controls. Pursued more detailed fossil identification in the paleontological laboratory to establish closer stratigraphic controls, mainly with Paleozoic rocks and some Mesozoic and Tertiary rocks. The Tertiary work included identification of ostracods from the Humboldt and Sheep Pass Formations and vertebrate and plant remains from Miocene alluvial sediments.

Memberships

Society of Vertebrate Paleontology; American Association of Petroleum Geologists; Canadian Society of Petroleum Geologists; Rocky Mountain Association of Geologists, Pacific Section; Society of Economic Paleontologists and Mineralogists; San Bernardino County Museum.

Publications in Geology

Five publications in Geology concerning an oil field study, a ground water and earthquake study, a report on the geology of the Santa Rosa Mountain area, and papers on vertebrate and invertebrate Holocene Lake Cahuilla faunas.

PROJECT ARCHAEOLOGIST/NATIVE AMERICAN LIAISON
Laura Hensley Shaker, B.S.

Education

- 1998 B.S., Anthropology (with emphasis in Archaeology), University of California, Riverside.
1997 Archaeological Field School, University of California, Riverside.

Professional Experience

- 1999- Project Archaeologist, Native American Liaison, CRM TECH, Riverside / Colton, California.
1999 Archaeological survey and excavation at Vandenburg Airforce Base; Applied Earthworks, Lompoc, California.
1999 Archaeological survey at Fort Irwin Army Training Facility, Barstow; A.S.M. Affiliates, Encinitas, California.
1998-1999 Paleontological fieldwork and laboratory procedures, Eastside Reservoir Project; San Bernardino County Museum, Redlands, California.
1998 Archaeological survey at the Anza-Borrego State Park; Archaeological Research Unit, University of California, Riverside.
1997-1998 Archaeological survey and excavation at the Twentynine Palms Marine Corps Air and Ground Combat Center; Archaeological Research Unit, University of California, Riverside.

APPENDIX 2

**CORRESPONDENCE WITH
NATIVE AMERICAN REPRESENTATIVES***

* A total of eight local Native American representatives were contacted. A sample letter is included in this report.



1016 E. Cooley Drive
Suite B
Colton, CA 92324
909-824-6400 • Tel
909-824-6405 • Fax

To:

Native American
Heritage Commission

Fax:

(916) 657-5390

From:

Nina Gallardo

Date:

August 14, 2008

Number of pages (including this
cover sheet):

2

HARDCOPY:

 will follow by mail

 ✓ will not follow unless
requested

RE: Sacred Land records search

This is to request a Sacred Lands records search

Name of project:

Verdemont Water Infrastructure Improvements
CRM TECH #2269 (Verdemont Water Update)

Project size:

Pump station and reservoir

Location:

In the City of San Bernardino
San Bernardino County

USGS 7.5' quad sheet data:

Devore & San Bernardino North, Calif.
Muscupiabe land grant, T1N R5W, SBBM

Please call if you need more information or have any
questions.

Results may be faxed to the number above.

I appreciate your assistance in this matter.

Map included

August 20, 2008

Goldie Walker, Chairperson
Serrano Nation
6588 Valeria Drive
Highland, CA 92346

RE: Verdemont Water Infrastructure Improvements
In the City of San Bernardino, San Bernardino County
CRM TECH Contract #2269

Dear Ms. Walker:

As part of a cultural resources study for the project referenced above, I am writing to request your input on potential Native American cultural resources in or near the Area of Potential Effects (APE). Please respond at your earliest convenience if you have any specific knowledge of sacred/religious sites or other sites of Native American traditional cultural value within or near the APE. The lead agency for this project is the San Bernardino Municipal Water Department for Section 106-compliance purposes.

The project, which includes improvements to an existing reservoir and construction of an additional reservoir, is located on the west side of Reservoir Plant Road, in the City of San Bernardino, San Bernardino County. The accompanying map, based on the USGS Devore and San Bernardino North, Calif., 7.5' quadrangles, depicts the location of the APE in the Rancho Muscupiabe land grant, T1N R5W, SBBM.

Any information, concerns or recommendations regarding cultural resources in the vicinity of the APE may be forwarded to CRM TECH by telephone, e-mail, facsimile or standard mail. Thank you for the time and effort in addressing this important matter.

Respectfully,

Laura Hensley Shaker
CRM TECH

Encl.: APE map

TELEPHONE LOG

Name	Tribe/Affiliation	Telephone Contacts	Comments
Cindi Alvitre	Ti'At Society	4:09 pm, September 3, 2008 2:02 pm, September 5, 2008	Left messages; no response to date.
Anthony Morales, Chairperson	Gabrieleno/Tongva San Gabriel Band of Mission Indians	4:17 pm, September 3, 2008 1:56 pm, September 5, 2008 9:30 am, September 8, 2008	Mr. Morales requested that proper procedures be followed during the undertaking and that the project proponents keep him informed of the progress.
Mike Contreras, Jr., Cultural Heritage Project Manager	Morongo Band of Mission Indians	4:11 pm, September 3, 2008	The tribe wished to defer to other tribes located closer to the APE.
Joseph Hamilton, Chairman	Ramona Band of Mission Indians	4:15 pm, September 3, 2008	John Gomez, Jr., is the designated spokesperson for the tribe (see below).
John Gomez, Jr., Cultural Resources Coordinator	Ramona Band of Mission Indians	4:13 pm, September 3, 2008 2:05 pm, September 5, 2008	Left messages; no response to date.
James Ramos, Chairperson	San Manuel Band of Mission Indians	None	Ann Brierty is the designated spokesperson for the tribe (see below).
Ann Brierty, Cultural Resources Field Manager	San Manuel Band of Mission Indians	4:15 pm, September 3, 2008 3:45 pm, September 5, 2008	Left messages; no response to date.
Goldie Walker	Serrano Nation of Indians	4:20 pm, September 3, 2008 2:10 pm, September 5, 2008	Ms. Walker wishes to be contacted if any Native American artifacts or human remain were discovered in the APE. She also noted that the County Coroner must be contacted if human remains were found.

APPENDIX 3

**LOCATIONS OF KNOWN HISTORICAL/ARCHAEOLOGICAL
SITES IN THE VICINITY OF THE APE**

(Confidential)

APPENDIX B

Informal Section 7 Consultation and Site Review

-----Original Message-----

From: Nancy_Ferguson@fws.gov <Nancy_Ferguson@fws.gov>

To: Aldstadt_St <Aldstadt_St@ci.san-bernardino.ca.us>

Sent: Tue May 20 09:14:36 2008

Subject: Re: FW: Palm 3 Figure PDF

OK! Way too many questions before lunch! However, here's my advice:

Have a qualified biologist look at the proposed project footprint for any potential SBKR-occupied habitat (that means the pad site and any on- of off-site pipeline emplacement alignments if there are any). Your site is in SBKR territory, so they could have moved in if the soils are appropriate for them.

IF there are sufficient habitat indicators (e.g., soils, vegetation, animal sign), then we recommend the EPA consult with us, at least informally, until we have enough information for a determination of effects to be made (i.e., 'no effect'; 'may affect').

If a qualified biologist conducts a habitat assessment and documents findings indicating that the project area is not likely to support the SBKR and therefore, no incidental take of SBKR is anticipated to occur as a result of the project, then the EPA can consider that it's obligations under Section 7 of the Endangered Species Act have been met and we will provide them with a letter so indicating.

That should take care of it!

Nancy Ferguson, Ph.D.
U.S. Fish and Wildlife Service
Chief, San Bernardino County Division
Carlsbad Fish and Wildlife Office
760-431-9440 ext. 244

"Aldstadt_St" <Aldstadt_St@ci.san-bernardino.ca.us>

05/19/2008 04:12 PM

To
<Nancy_Ferguson@fws.gov>

cc

Subject
FW: Palm 3 Figure PDF

From: Nancy_Ferguson@fws.gov [mailto:Nancy_Ferguson@fws.gov]
Sent: Wednesday, June 18, 2008 9:52 AM
To: Aldstadt_St
Cc: shaytda@tstonramp.com
Subject: Re: FW: SBKR Report of Palm #3 Site

Hello Stacey,

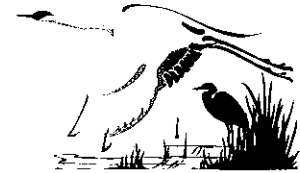
We have reviewed the attached habitat assessment conducted by Tom Dodson Associates. Given current site conditions, it is unlikely that the federally endangered San Bernardino kangaroo rat (*Dipodomys merriami parvus*, "SBKR") occupy the site. Therefore, we conclude that implementation of the proposed project is not likely to adversely affect the SBKR and incidental take of this species is not anticipated.

In view of this determination, we believe that the interagency consultation requirements of section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*), have been satisfied. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

Nancy Ferguson, Ph.D.
U.S. Fish and Wildlife Service
Chief, San Bernardino County Division
Carlsbad Fish and Wildlife Office
760-431-9440 ext. 244

TOM DODSON & ASSOCIATES

2150 N. ARROWHEAD AVENUE
SAN BERNARDINO, CA 92405
TEL (909) 882-3612 • FAX (909) 882-7015
E-MAIL shay@tdaenv.com



June 05, 2008

City of San Bernardino
Municipal Water Department
Attn: Bill Hemsley
195 North "D" Street
San Bernardino, CA 92401

Subject: SITE REVIEW OF THE CITY OF SAN BERNARDINO MUNICIPAL WATER
DEPARTMENT'S PROPOSED PALM RESERVOIR #3 SITE

Dear Mr. Hemsley:

The City of San Bernardino Municipal Water Department (Department) contracted Tom Dodson & Associates (TDA) to conduct a site review and habitat assessment of their proposed reservoir site, just north of their existing reservoir along Palm Reservoir Plant Road. The site is located in the City of San Bernardino, San Bernardino County, California. The site is bordered by Cajon Boulevard to the southwest, Palm Avenue to the southeast, and Palm Reservoir Plant Road to the northeast. Vacant property surrounds the site to the northwest, west and southwest. The site was reviewed by TDA biologist in 2006 and again in 2007 as part of the overall Verdemon Water Infrastructure Improvements.

The proposed project site is within designated critical habitat for the federally listed endangered San Bernardino kangaroo rat (SBKR). As per requirements of the U.S. Fish and Wildlife Service (USFWS) the site was reviewed by a qualified biologist to look for evidence of suitable habitat for SBKR.

On May 27, 2008, TDA biologist Shay Lawrey conducted a pedestrian field review of the proposed action area. Ms. Lawrey is a biologist permitted to trap and handle SBKR and is familiar with the required habitat elements of this species.

SBKR are known to occur in moderate to high densities in the local vicinity of the project area to the west near Institution Road, Cajon Wash, and Lytle Creek. The current habitat conditions of the site and adjacent properties are heavily disturbed due to recent and routine weed abatement maintenance activities. The site is essentially bare with the exception of ruderal vegetation such as non-native grasses, mustard and tumble weed. The site does not contain vegetative elements associated with SBKR. At this time, no sign of kangaroo rat activity (such as scat, prints, or tail drags) is evident on the site or on the adjacent parcels. A total of eight burrows were located on the site, but none of them are of the appropriate, size or shape indicative of kangaroo rat utilization. The enclosed site photos depict the current habitat conditions on the site and adjacent parcels.

At this point, there is no evidence that SBKR occupy or utilize the site or the adjacent parcels. The burrows that are present are not indicative of SBKR use. These burrows look to be very shallow, the type used by small reptiles and insects. There was one larger burrow but it did not extend back underground for more than three inches. The soils consist of deposited silt and sand that originate

from the alluvial fans coming off of the surrounding mountains. The soils are appropriate and conducive for burrow construction and maintenance, and because of this, SBKR could utilize the site if it were to lay fallow for a few months. Given time, the habitat conditions would passively revegetate with native species and thus provide a source of cover and forage for SBKR.

Today, the site does not provide suitable conditions to support SBKR and as such, the proposed project does not indicate a potential for impact or affect to SBKR. But in light of the fact that the site would naturally recover over time without disturbance, it is recommended to keep the existing maintenance regime going diligently. Since there are no shrubs present, there are no nesting birds on the site at this time either. So, continued maintenance in the already disturbed area of the site will not conflict with the provisions of the Migratory Bird Treaty Act that is administered by the California Department of Fish and Game.

If for some unforeseen reason, the maintenance activities cease and the site shows any signs of native habitat recovery, then the site would warrant further investigation in the form of protocol trapping per the guidelines of the USFWS.

Should you have any questions or comments, please do not hesitate to call me at (909) 882-3612.

Sincerely,

A handwritten signature in black ink, appearing to read "Shay Lawrey", written in a cursive style.

Shay Lawrey
Ecologist/Regulatory Specialist

Attachments: Site Photos

SITE PHOTOS



Photo 1. Proposed reservoir pad site looking north.



Photo 2. Proposed reservoir pad site looking northwest.



Photo 3. Proposed reservoir pad site looking west.



Photo 4. Proposed reservoir pad site looking southwest.



Photo 5. Proposed reservoir pad site looking southeast



Photo 6. Photo of ground cover and small burrows that are indicative of use by insects or small reptiles, not SBKR



Photo7. View of adjacent parcel to the north.



Photo 8. View of adjacent parcels to the northwest.



Photo 9. View of adjacent parcel to the southwest.



Photo 10. Overall view of the proposed pad site looking southeast.

APPENDIX C

Air Quality Analysis



Environment

Air Quality
Auditing
CEQA Air Analysis
Fire & Building Code
Health & Safety
Industrial Hygiene
Permitting
Project Management
Risk Assessment
Strategic Planning
Water Quality

Web-based Solutions

Quality ISO 9000
Environment ISO 14000
EHS Hosted Applications
QMS Hosted Applications
RIOS Hosted Applications

Daren E. Jorgensen
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Vice President

Brian T. Thorne
Vice President

Peter G. Stein
Vice President

Corporate Headquarters
12505 North Mainstreet
Suite 212
Rancho Cucamonga
California
91739

909.483.3300 Phone
909.494.7523 Fax

<http://www.jecsi.net>

VIA EMAIL: tda@tdaenv.com

Mr. Bill Gatlin
Tom Dodson & Associates
2150 North Arrowhead Avenue
San Bernardino, CA 92405

12 September 2008

Re: Air Quality Analysis for San Bernardino Water Department Palm #3 Reservoir Project in San Bernardino, California.

Dear Bill:

JE Compliance Services, Inc. (JECSI) was retained by Tom Dodson & Associates (TDA) to prepare a limited air quality analysis to focus on emission calculations for the construction and installation of a water reservoir in San Bernardino, California. The project involves the installation of one 4.0 million gallon steel water reservoir. The analysis does not include the emissions associated with existing or expected operations within the project area. Additionally, the analysis does not include an evaluation of whether the proposed project is in federal conformity nor does it include a federal conformity test in compliance with 40 CFR part 93. JECSI has not evaluated whether the proposed project is included in a regional emission analysis or included in any urban airshed model.

Analysis Methodology for Construction Scenario

URBEMIS 2007 (version 9.2.4) was used to estimate emissions during the construction project. Both the South Coast Air Quality Management District (SCAQMD) and California Air Resources Board (CARB) use and suggest the use of the URBEMIS 2007 model for developing emission estimates for construction projects. The following activities were evaluated: mass grading, foundation installation, reservoir construction, and application of architectural coatings. The project schedule is provided in **Table 1**.

Grading Activities

Grading activities will consist of a total of 25,000 square feet of soil being excavated to a depth of 10 feet. Approximately five feet of the excavated soil will be compacted on site and the remainder of the soil will be exported to an offsite location. Emissions from grading activities were estimated using an emission factor of 10 pounds per acre-day. It is estimated that the daily acreage to be disturbed during mass site grading activities will not exceed a half acre.

Emissions from grading activities occur from fugitive dust, equipment exhaust and worker trips. Maximum daily emissions from fugitive dust, off-road equipment and worker trips were generated using URBEMIS 2007. The schedule of off-road equipment was provided by TDA. Output files from URBEMIS 2007 are provided in **Attachment 1**. Criteria pollutant emissions from grading activities are summarized in **Emissions Evaluation**.

Foundation Activities

Emissions from foundation activities occur from equipment exhaust, worker trips and cement manufacturing. Maximum daily emissions of off-road equipment exhaust and worker trips were calculated using URBEMIS 2007. Maximum daily emissions of on-road equipment were calculated using SCAQMD emission factors and trip characteristics provided by TDA. Emissions of carbon dioxide from the manufacturing of concrete were calculated outside of URBEMIS. The emissions were calculated using USEPA emission factors and estimated concrete usage provided by TDA.

The equipment schedule of off-road equipment was provided by TDA. Output files from URBEMIS 2007 are provided in **Attachment 1**. Criteria pollutant emissions from grading activities are summarized in **Emissions Evaluation**.

Building Activities

URBEMIS identifies two phases of building activity: building construction and architectural coatings. Emissions from building construction are based on off-road equipment and worker trips. Maximum daily emissions from off-road vehicles and equipment were generated using URBEMIS 2007. Maximum daily emissions of on-road equipment were calculated outside URBEMIS using SCAQMD emission factors.

Emissions of VOC from architectural coating activities were calculated outside of URBEMIS 2007. The emissions were calculated using an emission factor for pounds of VOC per surface area coated and the surface area of the reservoir. The emission factor assumed that the painting VOC content was 250 g/L and the paint thickness was one millimeter. Emissions from architectural coating activities are provided in **Attachment 2**.

Information regarding the reservoir to be constructed and the construction schedule was provided by TDA. The schedule of off-road equipment was provided by TDA. Output files from URBEMIS 2007 are provided in **Attachment 1**. Criteria pollutant emissions from building activities on a daily basis are summarized in **Emissions Evaluation**.

Emissions of carbon dioxide from the manufacturing of steel were calculated outside of URBEMIS using GHG Protocol emissions factors. Emissions from the manufacture of steel were based on estimated steel usage provided by TDA. Emissions from manufacturing are provided in **Attachment 2**.



Mr. Bill Gatlin
Tom Dodson & Associates
12 September 2008
Page 3

Emissions Evaluation

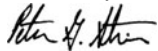
SCAQMD publishes screening levels to determine if a project is regionally significant.¹ Additionally, SCAQMD provides guidance on determining localized significance thresholds (LSTs) for a project.² SCAQMD provides mass rate LSTs look up tables that are a function of the project location, project size, and sensitive receptor distance. A site size of one acre and a receptor distance of 100 meters were used to determine the LSTs for the project.

Unmitigated criteria pollutant emissions from the construction phase of the project are provided in **Table 2**. The emissions of criteria pollutants from the construction phase do not exceed the regional significance thresholds or the LSTs.

Direct and indirect carbon dioxide emissions associated with the project are provided in **Table 3**. Estimated total carbon dioxide emissions from the construction project were approximately 1,293 metric tons. Of the 1,293 metric tons, approximately 51 tons were direct emissions occurring at the site, and approximately 1,242 metric tons were indirect emissions produced at another location (cement manufacturing and steel manufacturing). According to the California Greenhouse Gas Inventory issued by the California Energy Commission, gross carbon dioxide emissions for the State of California were 492.1 million metric tons in 2004. Carbon dioxide emissions (direct and indirect) from the San Bernardino Reservoir project account for approximately 0.00026% of California's carbon dioxide emissions.

Please call me or Daren with any comments or questions.

Sincerely,



Peter G. Stein
Vice President

Daren E. Jorgensen
President

¹ CEQA Air Quality Handbook, SCAQMD, April 1993, Section 6.4 Significance thresholds updated October 2006.

² Final Localized Significance Threshold Methodology, SCAQMD, June 2003.

Table 1 - Project Schedule

Activity	Duration (days)*
Mass grading	10
Building - foundation	8
Building - construction	20
Architectural coatings	11

*Presented as working days

Table 2 - Overall Maximum Unmitigated Daily Construction Emissions (lbs/day)

Activity	VOC	NOx	CO	SOx	PM10 (Dust)	PM10 (Exh)	PM10 (Total)	PM2.5 (Dust)	PM2.5 (Exh)	PM2.5 (Total)	CO2
Mass grading	5.58	48.96	25.78	0.00	5.02	2.17	7.18	1.04	1.99	3.04	4,217.64
Foundation - Materials delivery	3.47	38.46	14.76	0.03	1.61	1.90	3.51	1.40	1.76	3.17	333,373.21
Construction - Materials delivery	1.53	17.20	7.34	0.01	0.61	0.75	1.36	0.53	0.69	1.23	89,379.13
Architectural coatings	59.72	0.03	0.58	0	0	0	0	0	0	0	64.19
Max. Daily Emissions	59.72	48.96	25.78	0.03	5.02	2.17	7.18	1.40	1.99	3.17	333,373.21
Regional significance threshold	75	100	550	150	150	150	150	55	55	55	-
Localized significance threshold (see note 1)	-	211	2,109	-	33	33	33	9	9	9	-

Note 1: Localized significance threshold based on project area size of one acre and sensitive receptor distance of 100 meters from project boundary.

Table 3 - Summary of Carbon Dioxide Emissions

Phase	Emission type	Source	CO2, lbs/day	Duration of activity	Total, lbs
Mass grading	Direct	Fugitive dust	0.00	10	0.00
Mass grading	Direct	Off-road equipment	3,897.00	10	38,970.00
Mass grading	Direct	On-road equipment	196.21	10	1,962.10
Mass grading	Direct	Worker trips	124.43	10	1,244.30
Foundation	Direct	Off-road equipment	453.19	8	3,625.52
Foundation	Direct	On-road equipment	3,368.65	8	26,949.20
Foundation	Direct	Worker trips	155.54	8	1,244.32
Foundation	Indirect	Cement manufacturing	329,395.83	3	988,187.50
Building	Direct	Worker trips	180.77	20	3,615.40
Building	Direct	On-road equipment	1,263.24	20	25,264.80
Building	Direct	Off-road equipment	435.12	20	8,702.40
Building	Indirect	Steel manufacturing	87,500.00	20	1,750,000.00
Architectural coatings	Direct	Architectural coatings	0.00	11	0.00
Architectural coatings	Direct	Worker trips	64.19	11	706.09
Total, lbs (direct)					112,284.13
Total, lbs (indirect)					2,738,187.50
Total, metric tons (direct)					50.93
Total, metric tons (indirect)					1,242.02

Attachment 1

9/4/2008 1:23:46 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: S:\clients\wd\tdod\207615\207615 San Bernardino Reservoir.urb924

Project Name: San Bernardino Reservoir TDOD207615

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2009 TOTALS (lbs/day unmitigated)	44.22	48.96	25.77	0.00	5.01	2.17	7.18	1.05	2.00	3.05	4,217.64

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
Time Slice 1/1/2009-1/14/2009 Active Days: 10	5.57	48.96	25.77	0.00	5.01	2.17	7.18	1.05	2.00	3.05	4,217.64
Mass Grading 01/01/2009-01/14/2009	5.57	48.96	25.77	0.00	5.01	2.17	7.18	1.05	2.00	3.05	4,217.64
Mass Grading Dust	0.00	0.00	0.00	0.00	5.00	0.00	5.00	1.04	0.00	1.04	0.00
Mass Grading Off Road Diesel	5.42	47.31	24.04	0.00	0.00	2.10	2.10	0.00	1.93	1.93	3,897.00
Mass Grading On Road Diesel	0.12	1.58	0.61	0.00	0.01	0.07	0.07	0.00	0.06	0.06	196.21
Mass Grading Worker Trips	0.04	0.07	1.13	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.43

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Time Slice 1/15/2009-1/26/2009 Active Days: 8	0.90	5.78	4.81	0.00	0.01	0.46	0.47	0.00	0.42	0.43	707.62
Asphalt 01/15/2009-01/26/2009	0.90	5.78	4.81	0.00	0.01	0.46	0.47	0.00	0.42	0.43	707.62
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.79	4.90	3.09	0.00	0.00	0.42	0.42	0.00	0.39	0.39	453.19
Paving On Road Diesel	0.06	0.80	0.31	0.00	0.00	0.03	0.04	0.00	0.03	0.03	98.89
Paving Worker Trips	0.05	0.08	1.41	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.54
Time Slice 1/27/2009-2/23/2009 Active Days: 20	0.56	4.92	3.71	0.00	0.01	0.21	0.22	0.00	0.19	0.20	662.41
Building 01/27/2009-02/23/2009	0.56	4.92	3.71	0.00	0.01	0.21	0.22	0.00	0.19	0.20	662.41
Building Off Road Diesel	0.49	4.55	1.85	0.00	0.00	0.19	0.19	0.00	0.18	0.18	435.13
Building Vendor Trips	0.02	0.27	0.22	0.00	0.00	0.01	0.01	0.00	0.01	0.01	46.50
Building Worker Trips	0.05	0.10	1.64	0.00	0.01	0.00	0.01	0.00	0.00	0.01	180.77
Time Slice 2/24/2009-3/10/2009 Active Days: 11	44.22	0.03	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.19
Coating 02/24/2009-03/10/2009	44.22	0.03	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.19
Architectural Coating	44.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.03	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.19

Phase Assumptions

Phase: Mass Grading 1/1/2009 - 1/14/2009 - 0.5 acre
Total Acres Disturbed: 0.57
Maximum Daily Acreage Disturbed: 0.5
Fugitive Dust Level of Detail: Default
10 lbs per acre-day
On Road Truck Travel (VMT): 46.29
Off-Road Equipment:
1 Crushing/Processing Equip (142 hp) operating at a 0.78 load factor for 8 hours per day

9/4/2008 1:23:47 PM

2 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 1/15/2009 - 1/26/2009 - foundation

Acres to be Paved: 0.52

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Building Construction 1/27/2009 - 2/23/2009 - reservoir construction

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

1 Forklifts (145 hp) operating at a 0.3 load factor for 4 hours per day

Phase: Architectural Coating 2/24/2009 - 3/10/2009 - reservoir coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

9/4/2008 1:24:39 PM

Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: S:\clients\wd\tdod\207615\207615 San Bernardino Reservoir.urb924

Project Name: San Bernardino Reservoir TDOD207615

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2009 TOTALS (lbs/day unmitigated)	44.22	48.96	25.77	0.00	5.01	2.17	7.18	1.05	2.00	3.05	4,217.64

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
Time Slice 1/1/2009-1/14/2009 Active Days: 10	5.57	48.96	25.77	0.00	5.01	2.17	7.18	1.05	2.00	3.05	4,217.64
Mass Grading 01/01/2009-01/14/2009	5.57	48.96	25.77	0.00	5.01	2.17	7.18	1.05	2.00	3.05	4,217.64
Mass Grading Dust	0.00	0.00	0.00	0.00	5.00	0.00	5.00	1.04	0.00	1.04	0.00
Mass Grading Off Road Diesel	5.42	47.31	24.04	0.00	0.00	2.10	2.10	0.00	1.93	1.93	3,897.00
Mass Grading On Road Diesel	0.12	1.58	0.61	0.00	0.01	0.07	0.07	0.00	0.06	0.06	196.21
Mass Grading Worker Trips	0.04	0.07	1.13	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.43

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Time Slice 1/15/2009-1/26/2009 Active Days: 8	0.90	5.78	4.81	0.00	0.01	0.46	0.47	0.00	0.42	0.43	707.62
Asphalt 01/15/2009-01/26/2009	0.90	5.78	4.81	0.00	0.01	0.46	0.47	0.00	0.42	0.43	707.62
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.79	4.90	3.09	0.00	0.00	0.42	0.42	0.00	0.39	0.39	453.19
Paving On Road Diesel	0.06	0.80	0.31	0.00	0.00	0.03	0.04	0.00	0.03	0.03	98.89
Paving Worker Trips	0.05	0.08	1.41	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.54
Time Slice 1/27/2009-2/23/2009 Active Days: 20	0.56	4.92	3.71	0.00	0.01	0.21	0.22	0.00	0.19	0.20	662.41
Building 01/27/2009-02/23/2009	0.56	4.92	3.71	0.00	0.01	0.21	0.22	0.00	0.19	0.20	662.41
Building Off Road Diesel	0.49	4.55	1.85	0.00	0.00	0.19	0.19	0.00	0.18	0.18	435.13
Building Vendor Trips	0.02	0.27	0.22	0.00	0.00	0.01	0.01	0.00	0.01	0.01	46.50
Building Worker Trips	0.05	0.10	1.64	0.00	0.01	0.00	0.01	0.00	0.00	0.01	180.77
Time Slice 2/24/2009-3/10/2009 Active Days: 11	44.22	0.03	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.19
Coating 02/24/2009-03/10/2009	44.22	0.03	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.19
Architectural Coating	44.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.03	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.19

Phase Assumptions

Phase: Mass Grading 1/1/2009 - 1/14/2009 - 0.5 acre
Total Acres Disturbed: 0.57
Maximum Daily Acreage Disturbed: 0.5
Fugitive Dust Level of Detail: Default
10 lbs per acre-day
On Road Truck Travel (VMT): 46.29
Off-Road Equipment:
1 Crushing/Processing Equip (142 hp) operating at a 0.78 load factor for 8 hours per day

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2 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 1/15/2009 - 1/26/2009 - foundation

Acres to be Paved: 0.52

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Building Construction 1/27/2009 - 2/23/2009 - reservoir construction

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

1 Forklifts (145 hp) operating at a 0.3 load factor for 4 hours per day

Phase: Architectural Coating 2/24/2009 - 3/10/2009 - reservoir coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: S:\clients\wd\tdod\207615\207615 San Bernardino Reservoir.urb924

Project Name: San Bernardino Reservoir TDOD207615

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2009 TOTALS (tons/year unmitigated)	0.28	0.32	0.19	0.00	0.03	0.01	0.04	0.01	0.01	0.02	30.90

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
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2009	0.28	0.32	0.19	0.00	0.03	0.01	0.04	0.01	0.01	0.02	30.90
Mass Grading 01/01/2009-01/14/2009	0.03	0.24	0.13	0.00	0.03	0.01	0.04	0.01	0.01	0.02	21.09
Mass Grading Dust	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.01	0.00	0.01	0.00
Mass Grading Off Road Diesel	0.03	0.24	0.12	0.00	0.00	0.01	0.01	0.00	0.01	0.01	19.48
Mass Grading On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98
Mass Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62
Asphalt 01/15/2009-01/26/2009	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.83
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.81
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62
Building 01/27/2009-02/23/2009	0.01	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.62
Building Off Road Diesel	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.35
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47
Building Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.81
Coating 02/24/2009-03/10/2009	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35
Architectural Coating	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35

Phase Assumptions

Phase: Mass Grading 1/1/2009 - 1/14/2009 - 0.5 acre

Total Acres Disturbed: 0.57

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Default

10 lbs per acre-day

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- Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Attachment 2 -

Maximum Daily Unmitigated Construction Emissions (2009)

[illegible]

Emissions from Delivery Vehicles

$$Y = (N)(D)(EF)$$

where,

Y = Daily emissions of criteria pollutant, lbs/day.

N = Number of trips per day.

D = Distance per trip, miles.

EF = Emission factor for criteria pollutant, lb/mile.

Emissions from On-Road Vehicles During Foundation Phase

Year	Type	Total daily round trips	Miles during trip	Emission factors (lbs/mile)								
				VOC	CO	NOx	SOx	PM10, tire and brake	PM10, exhaust	PM2.5, tire and brake	PM2.5, exhaust	CO2
2009	Delivery of reservoir materials	10	30	0.00329320	0.01282236	0.04184591	0.00004013	0.00199572	0.00185393	0.00175227	0.00170680	4.21080792
2009	Delivery of foundation materials	40	20	0.00329320	0.01282236	0.04184591	0.00004013	0.00199572	0.00185393	0.00175227	0.00170680	4.21080792

Emissions from Delivery Vehicles

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Emissions from On-Road Vehicles During Foundation Phase

Emissions from On-road Vehicles During Foundation Phase														
Year	Type	Total daily round trips	Miles during trip	Emissions (lbs/day)										
				VOC	CO	NOx	SOx	PM10, tire and brake	PM10, exhaust	Total PM10	PM2.5, tire and brake	PM2.5, exhaust	Total PM2.5	CO2
2009	Delivery of reservoir materials	10	30	0.99	3.85	12.55	0.01	0.6	0.56	1.16	0.53	0.51	1.04	1,263.24
2009	Delivery of foundation materials	40	20	2.63	10.26	33.48	0.03	1.6	1.48	3.08	1.4	1.37	2.77	3,368.65

Indirect Emissions of Carbon Dioxide from the Manufacturing of Steel

$$Y = QFk/d$$

where,

Y = Daily emissions of carbon dioxide, lbs/day.

Q = Estimated quantity of steel used during building activities, 500 tons.

F = Emission factor for carbon dioxide, 1.75 lb/lbs (GHG Protocol, Appendix B).

k = Conversion factor, 2,000 lb/ton.

d = Duration of building activities, 20 days.

$$Y = (500 \text{ tons})(2000 \text{ lb/ton})(1.75 \text{ lb/lb})(20 \text{ days})^{-1} = 87,500 \text{ lbs/day}$$

Indirect Emissions of Carbon Dioxide from the Manufacturing of Cement

$$Y = QKPF/d$$

where,

Y = Daily emissions of criteria pollutant, lbs/day.

Q = Quantity of concrete used for foundation activities, 2,000 yd³.

K = density of concrete, 4,075 lb/yd³.

P = Proportion of cement in concrete, 0.125 lb/lb.

EF = Emission factor for carbon dioxide, 0.97 lb/lbs (CO₂ Emission Profile of the U.S. Cement Industry, Environmental Protection Agency, 2001).

d = Duration of foundation activities, 3 days.

$$Y = (2,000 \text{ yd}^3)(4,075 \text{ lb/yd}^3)(0.125 \text{ lb/lb})(0.97 \text{ lb/lb})(3 \text{ days})^{-1} = 329,396 \text{ lbs/day}$$

Emissions of VOC from Architectural Coating

$$Y = FA/D$$

where,

Y = Daily emissions of VOC, lbs/day.

F = Emission factor, 0.0185 lbs VOC/ft² of surface area (based on 250 g/L and 1 mil thickness).

A = Surface area of reservoir, 35,498 ft².

D = Duration of coating activities, 11 days.

$$Y = [(0.0185 \text{ lbs VOC/ft}^2)(35,498 \text{ ft}^2)/ 11 \text{ days}] = 59.70 \text{ lbs}$$